

2024



Edgewater

URBAN FOREST MASTER PLAN



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The City of Edgewater partnered with Davey Resource Group, Inc. (DRG) to assist in the development of this Urban Forest Master Plan. DRG is recognized as a national leader in urban forestry. Over the last three decades, DRG has partnered with hundreds of municipalities across the United States to assist them in developing and implementing sustainable urban forestry programs.

The City of Edgewater wants to thank the residents who participated and expressed their thoughts about the urban forest through the project's survey, public meeting, and public draft review period.

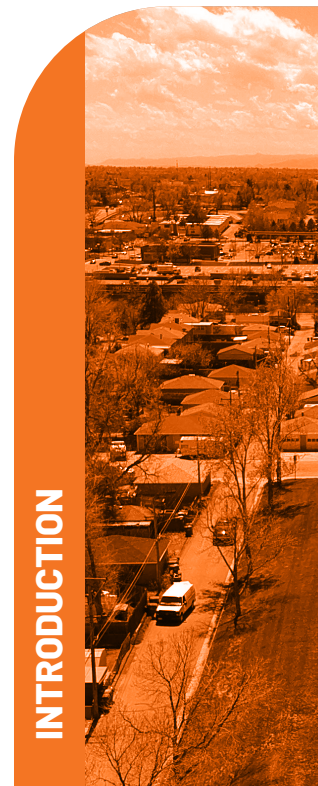


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Executive Summary

Edgewater’s urban forest—made up of a mosaic of trees growing along the city’s streets and in parks and private landscapes—provides essential environmental, economic, and social benefits that support the quality of life for the Edgewater community.

In 2023, the City of Edgewater began the process to develop this plan, the city’s first comprehensive Urban Forest Master Plan (UFMP/ Plan). The UFMP provides a framework to develop a healthy, resilient, and sustainable urban forest by proactively managing, preserving, caring for, and growing Edgewater’s trees. The Plan highlights the current state of Edgewater’s urban forest and outlines recommendations and actions to manage it as a sustainable community asset.

PLANNING PROCESS

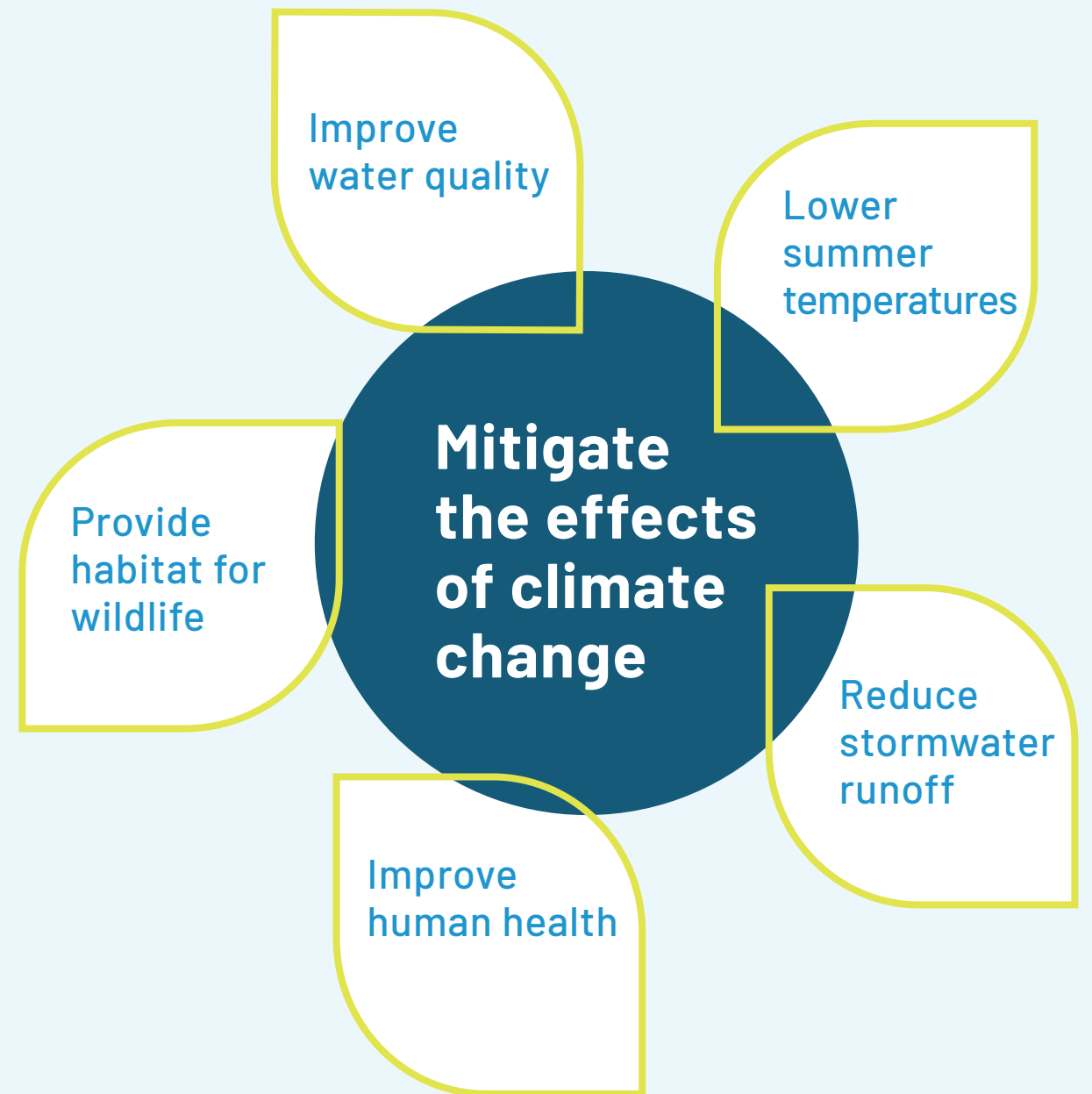
The development, organization, and structure of the Edgewater UFMP is based on the principles of adaptive management, an approach commonly used for resource planning and management. This approach provides a conceptual framework by answering four key questions:

- What do we have?
- What do we want?
- How do we get there?
- How are we doing?

“ Learn character from trees, values from roots, and change from leaves.

—Tasneem Hameed

THE PLAN’S FRAMEWORK



What Do We Have?

EDGEWATER'S TREES

The City of Edgewater conducted an urban tree canopy assessment in 2020 to capture a perspective of the city's tree canopy and land cover. This assessment approximated a

15% canopy cover in Edgewater.

Additional analyses were conducted as a part of the UFMP to identify priority planting areas (based on stormwater, social equity, and urban heat island benefit) and to quantify the ecosystem services provided by Edgewater's urban forest.

Over their lifespans, Edgewater's trees have collectively removed more than

2,000 tons of carbon from the atmosphere, valued at \$390,865.

And each year, they provide quantifiable benefits totaling more than \$32,700—including:

7,200 pounds of pollutants removed.

922,000+ gallons of stormwater intercepted & absorbed.

59 tons of carbon dioxide (CO₂) sequestered.

In addition to their environmental benefits, trees **increase property values, reduce energy costs, lower crime rates, help create more successful business districts, and support physical and mental health.**

MANAGING EDGEWATER'S URBAN FOREST

Edgewater's urban forestry responsibilities are divided among various City departments and property owners. Adjacent property owners are responsible for street tree maintenance (tree pruning, tree removal, and stump removal). The City of Edgewater is responsible for enforcing this street tree maintenance with the goal to mitigate risk to the public. The City also plants and cares for trees in parks and other public spaces.

As with other infrastructure, such as roads, bridges, and utilities, City-managed trees require proactive and routine maintenance to ensure a resilient, safe, and sustainable resource. The Plan serves as a guide for Edgewater to improve tree management throughout the city.



COMPOSITE PRIORITY PLANTING MAP.

What Do We Want?

ENGAGEMENT

Three main groups were engaged during the plan development process to determine the vision, goals, and recommendations of the UFMP.

- **Project Team** was made up of City of Edgewater staff and the Davey Resource Group consultant team and worked together to structure the plan development process, gather technical information, and form recommendations.
- **Stakeholders** were engaged through participation in a Technical Advisory Committee and Community Advisory Committee. These groups consisted of different individuals and organizations that were interested, involved, or whose work impacts the urban forest. Discussions included feedback on issues, challenges, and opportunities around Edgewater's trees.
- **Edgewater Community (public)** was engaged to understand their values, needs, and priorities related to Edgewater's trees and urban forest. Edgewater community input was gathered through a community open house, survey, and photo contest.

Of all survey respondents:

96% strongly agree that trees are important to Edgewater.

THEMES AND PRIORITIES

The engagement and outreach activities identified a set of themes and priorities that were used in the development of the plan's vision, goals, and recommendations.

- Community Values Trees.
- Communication, Education, Outreach, and Engagement.
- Tree Preservation and Protection.
- Tree Policies and Ordinances.
- Best Management Practices and Standards.
- Tree Data.
- Urban Forestry Program Improvements.
- Canopy Loss.
- Tree Planting.
- Tree Maintenance.
- Budget.
- Species Selection/Climate Change.
- Partnerships.
- Regional Collaboration.



How Do We Get There?

URBAN FOREST MASTER PLAN GOALS AND RECOMMENDATIONS

The UFMP goals and their corresponding recommendations provide a framework for the proactive management, care, preservation, and growth of Edgewater’s urban forest.

- **Preserve and build** a resilient urban forest for the future.
- **Develop** coordinated and aligned forestry management practices for the city.
- **Strengthen** public-private partnerships to improve urban forest stewardship.

The Plan Recommendations are listed by letter for ease of identification. The Plan provides action items for each recommendation along with timeframes and resources that may be needed for completion. While these actions should serve as the basis for implementation of the plan, acceleration in implementation of recommendations and action items is encouraged as opportunities arise.

Recommendations

- Leverage public and stakeholder support of Edgewater’s urban forest to better care for public street trees.
- Strengthen policies and procedures that preserve and protect trees.
- Enhance the City’s urban forestry services through utilization of internal and external professionals.
- Take a data driven approach to urban forest management and care.
- Develop a multi-year tree planting strategy including both public and private property.
- Build regional partnerships to support urban forestry operations.

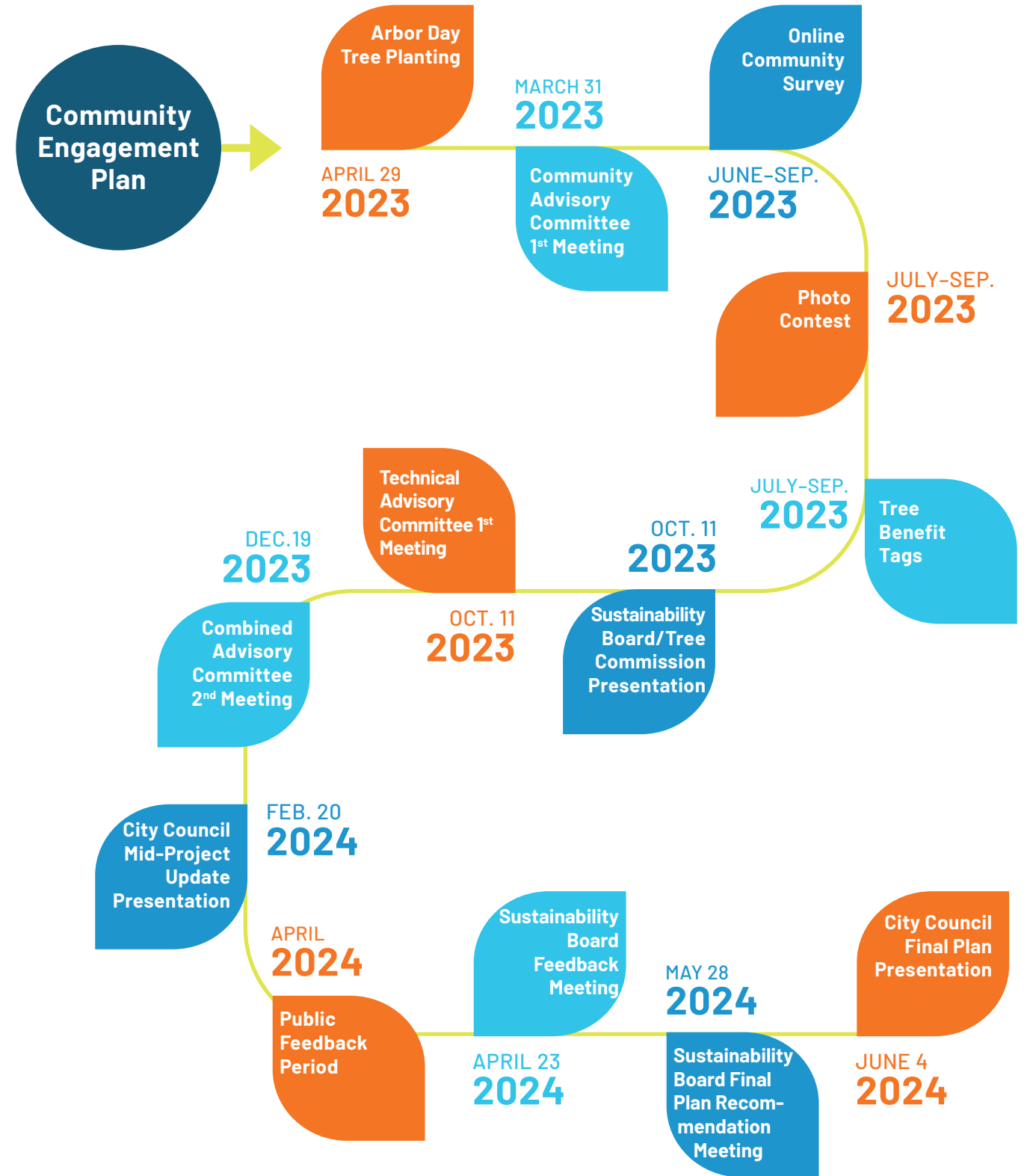


FIGURE 1. COMMUNITY ENGAGEMENT PLAN TIMELINE



The true meaning of life is to plant trees, under whose shade you do not expect to sit.

—Nelson Henderson

Introduction

Edgewater’s urban forest plays an essential role in the city, providing numerous tangible and intangible benefits to residents, visitors, neighboring communities, and wildlife. The services that the trees provide make them indispensable assets. Unlike other types of infrastructure, the urban forest’s value increases over time, returning on average \$2.25 dollars per dollar spent.¹

By assessing the state of Edgewater’s trees and management, this Urban Forest Master Plan (UFMP/ Plan) makes recommendations for the protection and growth of the urban forest. Effectively stewarding Edgewater’s urban forest will bolster the resilience and well-being of the community.

IMPORTANCE OF TREES



Trees Improve Air Quality

Situated in the heart of the Denver metro area, Edgewater experiences the harsh impacts of air pollution common in urban areas. A 2020 study by the American Lung Association ranks Denver in the top 10 of their list of most-polluted cities in the country for ozone levels,² which is forecasted to increase by about 3% across the state by 2050.³ Trees absorb harmful gaseous pollutants like ozone, nitrogen dioxide, and sulfur dioxide; intercept and filter particulate matter from the air, including dust, ash, pollen, and smoke; and reduce ozone formation by shading surfaces and reducing air temperatures. Trees’ ability to reduce air pollutants save an additional 850 lives and prevent 670,000 incidents of acute respiratory symptoms in the United States each year.⁴



Trees Reduce Flood Risk & Clean Water

Tree canopy intercepts stormwater, reducing intensity of rainfall at the ground level by 19–21%.⁵ This intercepted rainfall either evaporates from leaves or slowly soaks into the ground, reducing and slowing stormwater runoff and pollutants by 20–60%.⁶ Underground, tree root growth and decomposition help to increase the amount of water soil can hold, allowing for greater absorption of rain.⁷ Each of these processes greatly reduces stormwater runoff, reducing flooding and erosion and preventing sediments and pollutants from entering waterways. Trees’ role in stormwater mitigation supports Edgewater’s Sustainability Plan goal to “Save and protect our water for current and future residents.”



Trees Cool the City

High temperatures in cities contribute to a phenomenon called the urban heat island. An urban heat island occurs when impervious surfaces (hard surfaces that limit the amount of water that soaks into the ground, such as roads, buildings, and sidewalks) trap and hold heat, causing air temperatures to be up to 7 °F hotter than in nearby, less urbanized areas.⁸ With 55% of Edgewater’s land cover consisting of impervious surface, urban heat island impacts can be significant.⁹ Edgewater’s climate is predicted to become increasingly warmer, with an average of 75–100 days each year predicted to be extreme heat days by 2050.³ Heat-related illnesses cause more deaths in the United States each year than any other natural disaster, and trees have been shown to prevent 1,200 heat-related deaths each year in the U.S.^{10,11}

Large, healthy urban trees are also able to lower temperatures through shading and transpiration. Shading reduces surface temperatures beneath trees, reducing peak surface temperatures by 20–45 °F, while transpiration reduces air temperature as water evaporates from leaf pores.^{12,13} Street trees’ cooling abilities are instrumental in Edgewater’s Traffic Calming Mobility Plan intention to create comfortable sidewalks for resident use.



Trees Support Wildlife

Trees serve as essential wildlife habitats, catering to a diverse array of birds, mammals, reptiles, insects, fish, and aquatic species. Urban trees play a pivotal role for migratory birds by offering sites for nesting, feeding, and resting during their journeys. The blossoms of trees serve as a source of pollen and nectar for native bees and other essential pollinators, and their canopies provide both food and shelter to a variety of wildlife.

What trees are considered part of Edgewater’s urban forest?

Edgewater’s urban forest encompasses all trees within the city limits, including those lining streets, adorning city parks, and growing in residential yards and commercial areas.



Trees Mitigate Climate Change

In 2017, the output of carbon dioxide equivalents by the City of Edgewater was 45,526 metric tonnes.¹⁴ Trees reduce greenhouse gasses that can trap and retain heat in the atmosphere and cause the city to get warmer. Carbon dioxide (CO₂), a major greenhouse gas, is absorbed and stored in tree trunks, branches, leaves, and roots during photosynthesis. One large tree can absorb up to 48 pounds of CO₂ per year, while one acre of trees stores the equivalent CO₂ released by driving an average car for 26,000 miles.¹⁵ Larger trees store more carbon, making the consistent investment in the care and preservation of Edgewater's trees essential to reduce greenhouse gasses.



Trees Improve Human Health

Trees are an important tool in reducing stressors that impact underserved populations. People living in neighborhoods with more canopy cover have been shown to have better overall health, including lower rates of obesity, more social cohesion, less stress, and lower blood pressure.^{16,17} Trees encourage physical activity; residents are three times more likely to be physically active when they live in areas with high levels of trees and vegetation.¹⁸ A 2018 study showed that residents reporting poor mental health decreased 63% just 18 months after vacant lots near their homes were planted with grass and trees.¹⁹



Trees Increase Safety and Community

Trees have been shown to enhance neighborhoods by increasing safety, strengthening ties between neighbors, and providing an overall sense of safety.²⁰ Trees growing in street rights-of-way help slow traffic, making streets safer for pedestrians and cyclists, which supports the goals of the Traffic Calming Mobility Plan.^{21,22} Research found that an increase in Denver's tree canopy was associated with fewer car crashes, finding that a 10% decrease of tree canopy was associated with 24.5% increase in car crashes.²³ A 10% increase in neighborhood tree canopy cover has also been associated with a 12-15% reduction in violent and property crimes.^{24,25}



Trees Can Lower Utility Bills

By providing shade in the hot summer months and windbreak in the winter, trees can significantly decrease building energy usage. Strategically placed trees save up to 56% on annual air-conditioning costs, while evergreens that block winter winds can save 3% on heating.²⁶



Trees Increase Property Values and Business

Mature, healthy trees can increase property values for both residential and commercial properties by an average of 10%,²⁷ as well as increase values of neighboring properties.²⁸ Studies have shown that a healthy urban forest also increases business revenue. Shoppers spend more time and money in shopping districts with mature, healthy tree canopies and are willing to spend 9-12% more for products, services, and parking at businesses with trees in front of them.^{29,30}



People living in neighborhoods with more canopy cover have been shown to have better overall health, including lower rates of obesity, more social cohesion, less stress, and lower blood pressure.

Tree Benefits by the Numbers

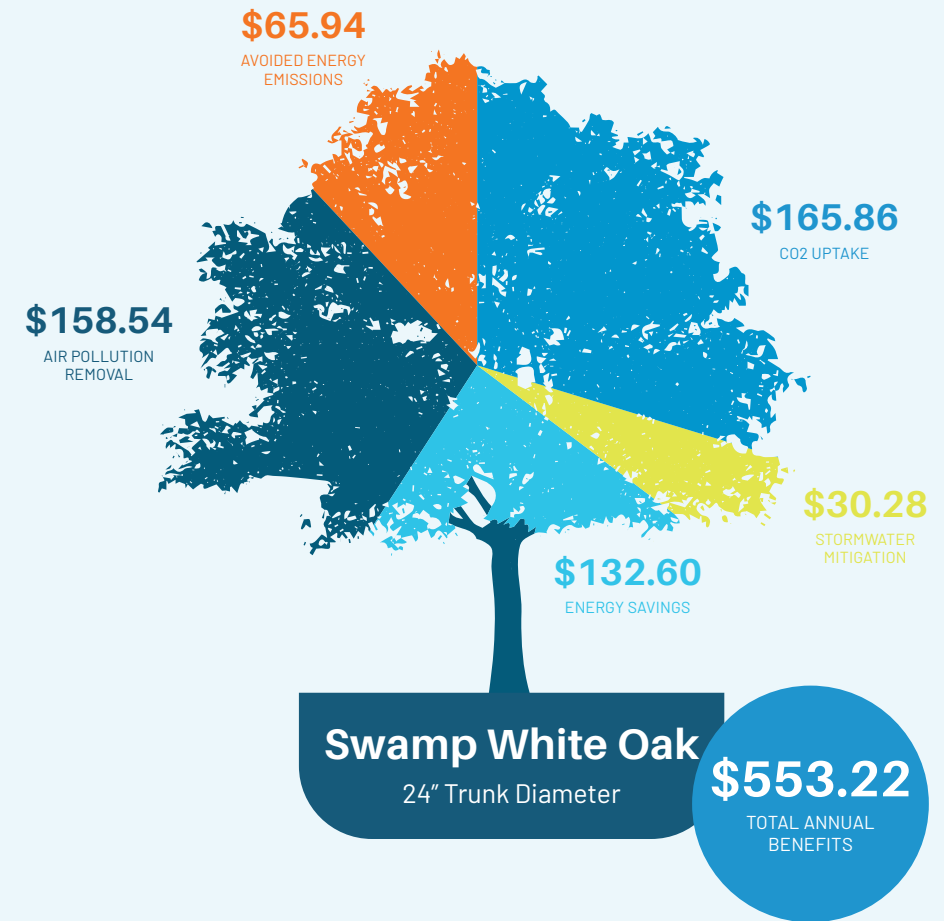
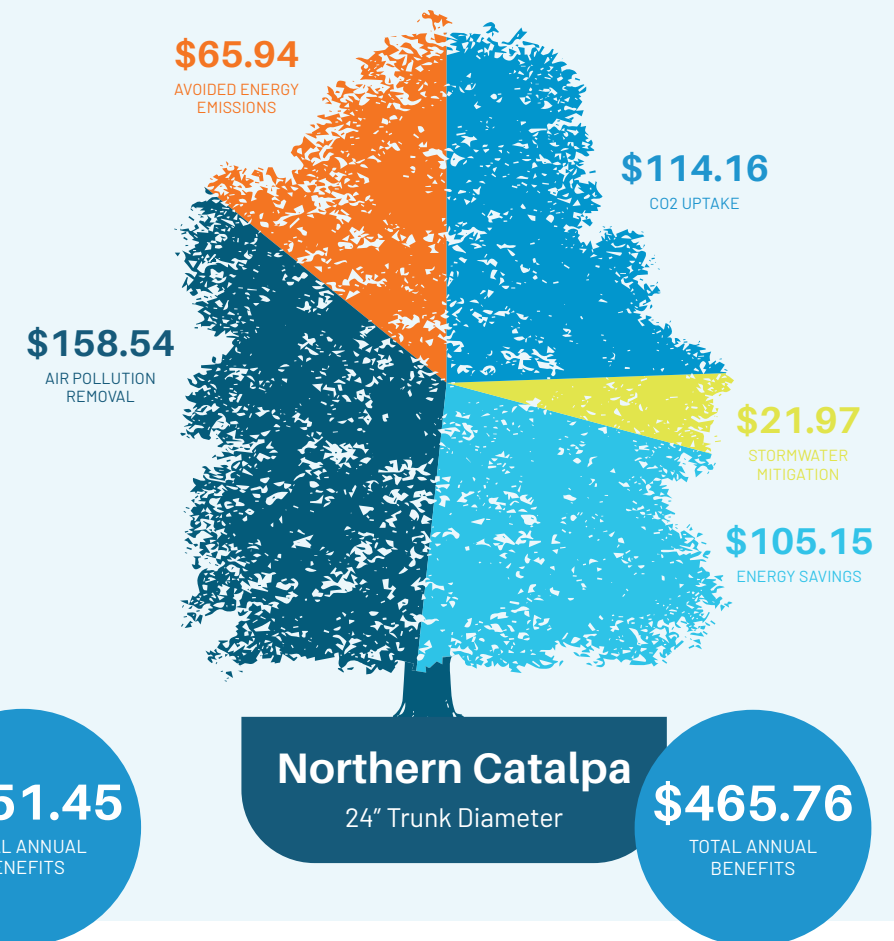
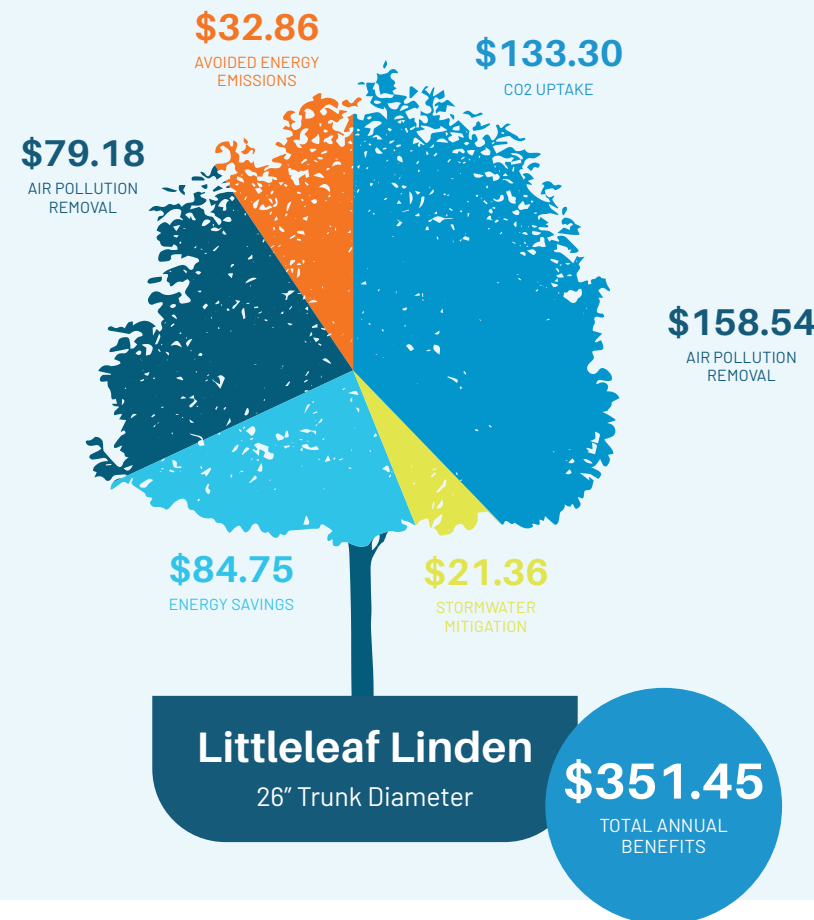
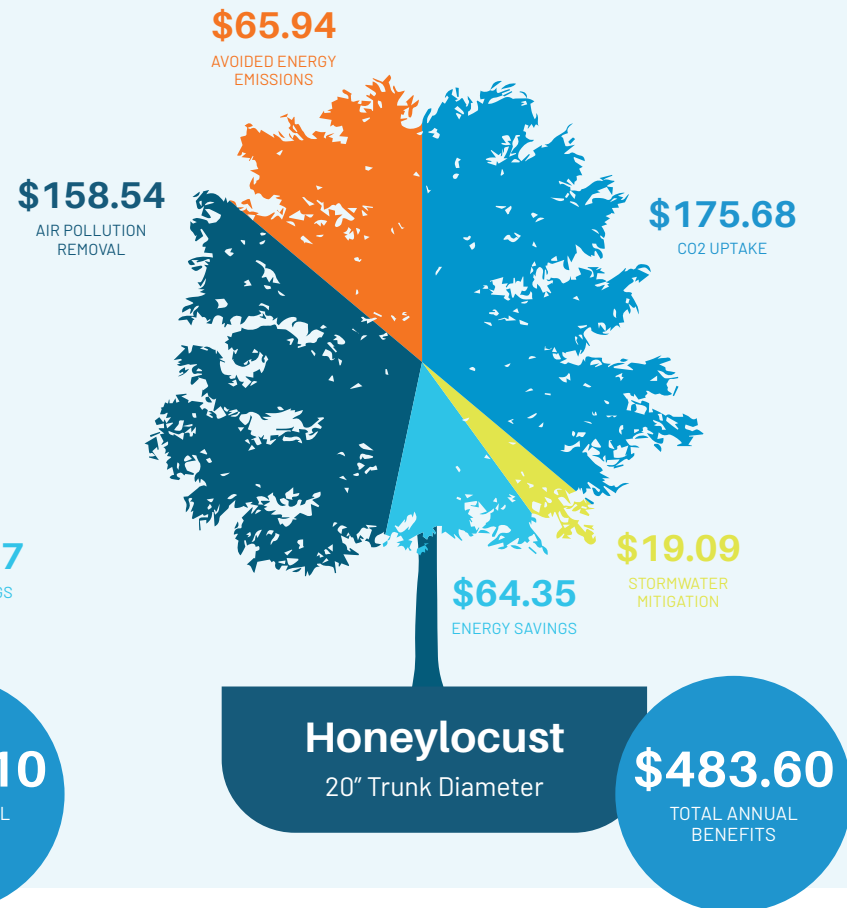
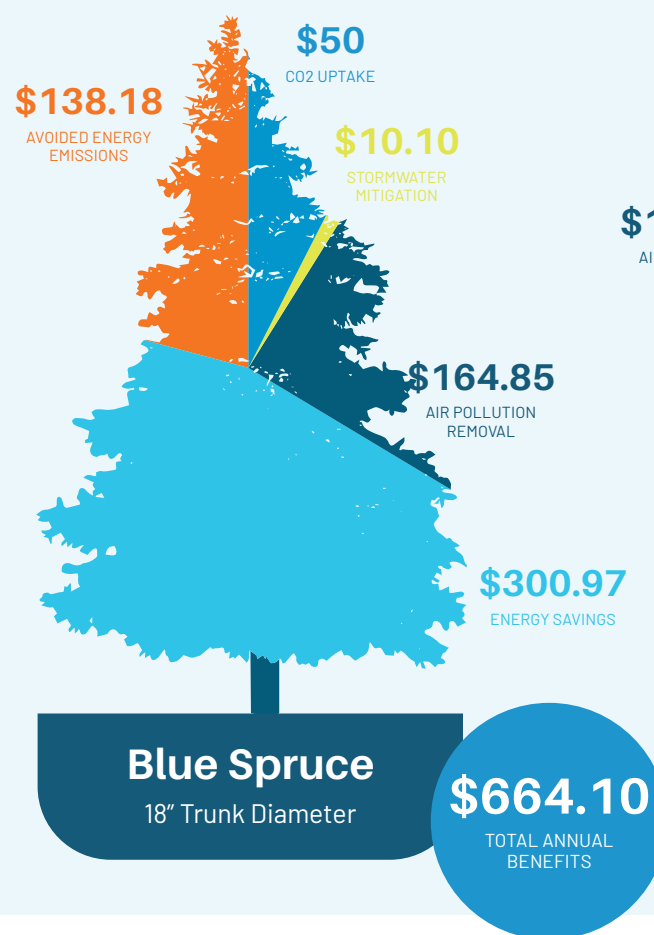


FIGURE 2. BENEFITS OF TREE SPECIES COMMON TO EDGEWATER.



Vision for Edgewater's Urban Forest

To ensure that Edgewater's urban forest is abundant, diverse, and well cared for; to benefit our community by **improving our well-being, supporting the city's climate resiliency, and symbolizing the community's commitment to our natural environment.**

PURPOSE

The plan's purpose is to guide the City's management strategy and decision-making **to develop a sustainable and resilient urban forest** that aligns with the City's comprehensive planning initiatives. Specifically, **the plan analyzes urban forestry data and outlines a set of targeted recommendations as a roadmap** for Edgewater officials, staff, residents, and businesses to use moving forward.



GUIDING PRINCIPLES

Maintenance and Management. Establish effective maintenance and management practices, including regular tree inspections, pruning, and insect/disease management, to ensure the long-term health and vitality of the urban forest.

Sustainability and Biodiversity. Prioritize the preservation, growth, and enhancement of Edgewater's urban forest's ecological health by planting a diverse range of native and adaptive tree species to promote resilience and biodiversity.

Climate Adaptation. Select and plant tree species resilient to changing climate conditions, aiming to mitigate the impact of extreme weather events, reduce the urban heat island effect, and contribute to overall climate adaptation efforts.

Community Stewardship. Foster a sense of community ownership and involvement in the urban forest by encouraging public-private partnerships, public participation, education, and awareness programs that highlight the value of trees, green spaces, and the role of residents in the care of Edgewater's trees.

Equitable Distribution. Ensure an equitable distribution of urban forest benefits across all neighborhoods, considering socio-economic factors and addressing disparities in tree canopy cover to create an inclusive and accessible urban forest for all residents.

Infrastructure, Planning and Development. Strategically integrate urban forestry into broader city initiatives and collaborate with other departments to synchronize efforts that leverage trees and vegetation for stormwater management, air quality improvement, and overall environmental sustainability.

Public Health and Well-Being. Recognize the positive impact of trees on public health and well-being, and prioritize the planting of trees in areas that lack green spaces, contributing to improved mental and physical health outcomes for residents.

Adaptive Management. Embrace an adaptive management approach that responds to changing conditions, incorporating regular monitoring, feedback loops, and flexibility in strategies to address emerging challenges and opportunities in the urban forest.

How to Use This Plan

The development of the Edgewater UFMP is based on the principles of adaptive management, which seek to develop an effective plan by answering a series of questions about Edgewater’s present and future. Adaptive management is commonly used for resource planning and provides a useful conceptual framework for managing Edgewater’s urban forest resource.³¹ This strategy encourages the City to consistently reassess the state of the urban forest and the effectiveness of its urban forestry management.

City administrators, developers, and residents can all use this plan to identify their role in making Edgewater’s urban forest a sustainable and resilient resource.



▲
CYCLISTS ENJOYING THE SAFETY AND BEAUTY THAT EDGEWATER’S URBAN FOREST HELPS PROVIDE.

Section 01. What Do We Have?

Section 1 presents the current state of Edgewater’s trees to establish a baseline of where the city is today. It also contains an assessment of the tools, resources, plans, and programs used to manage Edgewater’s urban forest.

Section 02. What Do We Want?

Section 2 summarizes community and stakeholder input that guided the development of this Plan.

Section 03. How Do We Get There?

Section 3 provides goals, recommendations, and actions for Edgewater to use in moving towards their vision for the urban forest.

Section 04. How Are We Doing?

Section 4 summarizes ways that Edgewater can monitor and measure its progress in implementing this Plan. ■

ADAPTIVE MANAGEMENT PLAN



▲
FIGURE 3. ADAPTIVE MANAGEMENT PLAN

01.

WHAT DO WE HAVE?



What do we have?

ABOUT EDGEWATER

Community History

The territory where Edgewater now stands originally belonged to the Arapaho tribe, as outlined in the 1851 Treaty of Fort Laramie. Gold discovery in the late 1850s attracted an influx of white settlers, who asserted their claims of the land, eventually resulting in the 1861 Treaty of Fort Wise and cessation of land by some tribal leaders.³² At this time, the area began its transformation from open prairie into the urban community we see today.

The urbanization of Edgewater traces back to Thomas Sloan's serendipitous well drilling project, which unintentionally gave rise to Sloan's Lake. Edgewater shares a history and a shoreline with Sloan's Lake. Edgewater was officially incorporated in 1901. In the decades that followed, as residential development pushed west from Denver into Edgewater, the dry, nearly treeless landscape began to be planted.³³



LANDSCAPE NEAR COLORADO FRONT RANGE.

Canopy cover grew as land was converted into neighborhoods and parks, enhancing the quality of life in Edgewater. The City has a demonstrated commitment to the preservation, maintenance, and growth of its urban forest through plans and initiatives, such as the Edgewater Healthy Tree Canopy Program, Sustainability Plan (2019), and Emerald Ash Borer Plan (2014).

Landscape & Climate

Located in Colorado's Front Range region, Edgewater has a semi-arid, high-desert climate characterized by low precipitation and abundant sunshine.

Edgewater's soils are primarily clay and alkaline soils, creating challenging conditions for certain plant species to thrive. Soil type, in addition to the area's climate, the historical impacts of extreme weather events, and other area- and site-specific factors contribute to the diversity and distribution of tree species found throughout Edgewater.

What humans do over the next 50 years will determine the fate of all life on the planet.
—Sir David Attenborough

Future Considerations

Urban trees often have stressful lives, between poor soil quality, air pollution, urban heat island, vandalism, and other factors common in cities. Challenges facing trees, both urban and forested, are expected to be magnified by forces such as climate change and development in the coming years. This Plan aims to help increase the urban forest's resilience in the face of these challenges by outlining strategies to protect and enhance tree health.

CLIMATE CHANGE

Air Quality



The dry climate coupled with the relatively flat topography of Edgewater creates air quality hazards from upwind wildfire smoke and anthropogenic sources. While native prairie plants have evolved with the presence of fire, non-native landscape trees may not be able to withstand prolonged periods of smoky conditions. One study demonstrated that photosynthesis in trees can be cut in half when exposed to only 20 minutes of smoke.³

Heat & Water Conservation



Colorado's eastern plains are prone to hot and dry summers. Trees adapted to these conditions will be an increasingly more important component of the urban forest, while those trees that are not well adapted may require additional irrigation. Regulating water use during hot and dry conditions must allow for irrigation to maintain the long-term health of Edgewater's shade-giving trees.

Stormwater & Flooding



Just as dry conditions are expected to become dryer, wet conditions are expected to become more extreme. Flooded soils can harm root systems and tree health. The loss of trees to extreme rain events is more than a one-time loss—during normal rain events, a single medium-sized tree can intercept over 2,000 gallons of water per year.³⁴

GROWTH & DEVELOPMENT

Although Edgewater's population has not changed significantly in recent years, the demand for housing and services in the Denver metro area is expected to continue into the foreseeable future. Development and other types of construction add stress and, in some cases, mortality to the surrounding trees and their roots. Negative impacts include compacting soil, modifying soil composition, altering the microclimate, and physical damage. Implementing tree protection policies, considering tree locations early in construction project plans, and adhering to proper tree protection protocols can help Edgewater minimize construction impacts on its urban forest.

Implementing tree protection policies, considering tree locations early in construction project plans, and adhering to proper tree protection protocols can help Edgewater minimize construction impacts on its urban forest.



Trees Support Edgewater's Goals

The UFMP supports the City of Edgewater's goals, including:

- The Sustainability Plan goal to **create, protect, and sustain a robust natural ecosystem for a healthy community and its residents.**
- The Sustainability and Resilience priority of the Edgewater City Council's Strategic Plan to **proactively work to manage resources responsibly and mitigate risks to ensure the needs of today and tomorrow can be met.**
- The City's Mobility Plan goal to **make streets sustainable and resilient by planting more trees and native vegetation, reducing transportation-related emissions, and improving air quality.**
- The Sheridan Boulevard Multimodal Corridor Plan's goal to **repair and beautify infrastructure with resilient and sustainable solutions.**

EDGEWATER'S TREES

Studying tree canopy can tell us where residents are benefitting from the presence of trees, how those benefits are changing over time, and where trees can be planted and preserved to enhance quality of life. As management progresses, Edgewater is encouraged to reference these results, utilize the data for additional analyses, and continue to seek new tools and information to measure progress, report accomplishments, and inform management decisions.

What is a UTC?

An urban tree canopy assessment (UTC) uses aerial imagery to measure the amount of tree canopy on both public and private property as viewed from above.

This information can be used to better understand the city's urban tree canopy—where it is, how it is changing, the benefits it provides to residents, and where potential tree planting opportunities exist.

In 2020, Edgewater completed a baseline urban tree canopy (UTC) assessment. Based on the latest aerial imagery at the time (2017), tree canopy covers approximately 65.8 acres (14.8%) of Edgewater. The report also examined data related to:

- **LAND COVER**
Land area that is covered (or not) by trees and vegetation, as viewed from above.
- **TREE CANOPY COVER BY ZONING**
Land area that is shaded by trees, summarized by social and political boundaries.
- **CHANGE IN TREE CANOPY COVER FROM 2011–2017**
How tree canopy cover has changed within social and political boundaries, referring to the 2011 Tree Canopy Cover Data produced in the 2013 Metro Denver Urban Forest Assessment, which reported that trees covered 98 acres (21.8%) in Edgewater at that time.*
- **POSSIBLE PLANTING AREA**
Highlighting areas where trees can be planted, excluding areas that aren't suitable (ball fields, high transmission right-of-way/corridors).

Additional analyses were conducted as a part of the UFMP development to identify:

- **PRIORITY PLANTING AREAS**
Prioritization of possible tree planting locations based on stormwater, social equity, and urban heat island benefit.
- **ECOSYSTEM SERVICES**
The amount of carbon sequestration, carbon storage, air pollution removal, and avoided stormwater runoff that is provided by Edgewater's trees as determined by i-Tree.

65.8 acres of tree canopy cover (14.8% of Edgewater), determined by an analysis of 2017 aerial imagery.

VIEW OF EDGEWATER'S AUTUMN CANOPIES ACROSS SLOAN'S LAKE.

Calculating Tree Benefits

The benefits of Edgewater's trees presented in this plan are calculated using **i-Tree Canopy** and **i-Tree Hydro**. i-Tree is the industry-recognized suite of tools used to measure and quantify the ecosystem benefits that trees provide.

i-Tree is a partnership between the USDA Forest Service, Davey Tree Expert Company, the Arbor Day Foundation, the International Society of Arboriculture, Society of Municipal Arborists, Casey Trees, and SUNY College of Environmental Science and Forestry. It was released in 2006, and its models are updated regularly based on the latest science and research.

See Appendix A for UTC i-Tree Benefits Analysis methodology.

*Methodologies between the 2013 Metro Denver Urban Forest Assessment and the 2020 Edgewater UTC differ significantly. See Page 45 for details.

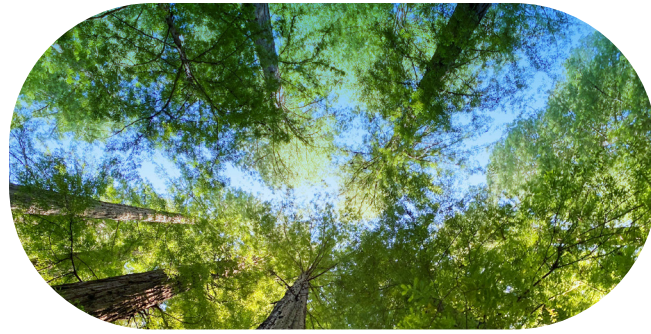
Land Cover Classification

Land cover analyses were conducted for this UTC assessment. By analyzing high-resolution aerial imagery from 2017, Edgewater land cover was categorized into five types:



TREE CANOPY

The area of land surface that is covered by the tree's leaf-covered branches, as seen from above.



NON-CANOPY VEGETATION

Pervious surfaces that allow rainfall to infiltrate the soil, as typically found in parks, golf courses, and residential lawns.



IMPERVIOUS SURFACES

Buildings, roads, sidewalks, and other paved/built areas that do not allow rainfall to infiltrate the soils.



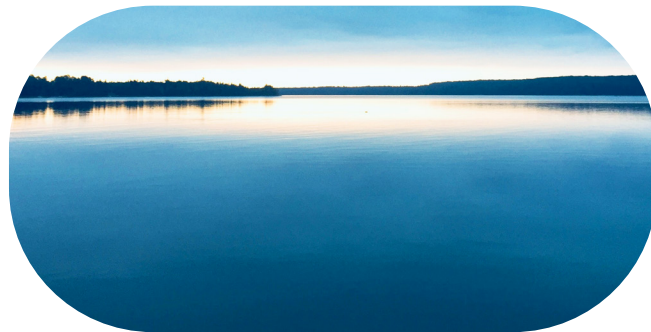
SOIL & DRY VEGETATION

Areas such as vacant lots, construction sites, and baseball infields, in addition to areas containing dry vegetation.



OPEN WATER

Lakes, ponds, streams, wetlands, and other mappable water features.



Land cover in Edgewater is mostly impervious surface (55%), followed by non-canopy vegetation (27%) and tree canopy (15%) (Table 1). Soil, dry vegetation, and open water comprise less than 4% of the city area.

TABLE 1. EDGEWATER LAND COVER BY ACRES AND PERCENTAGE.

LAND COVER	ACRES	%
Impervious	246	55%
Non-Canopy Vegetation	120	27%
Tree Canopy	66	15%
Soil & Dry Vegetation	12	3%
Water	<1	<1%



IMPERVIOUS SURFACES AT THE INTERSECTION OF 20TH AND HARLAN. ▲

CANOPY AND NON-CANOPY VEGETATION AT CITIZEN'S PARK. ▼



Tree Canopy by Zoning

The UTC assessment shows that average tree canopy cover across Edgewater is 14.8% as of 2017. Tree canopy is unevenly distributed across the city, with less tree canopy in commercial areas and more tree canopy in residential areas (Table 2). See Appendix A for the original UTC dataset.

TABLE 2. TREE CANOPY COVER BY ZONING IN EDGEWATER.

ZONING CLASS	TOTAL AREA (ACRES)	DISTRIBUTION OF CITY'S AREA (%)	TREE CANOPY (ACRES)	TREE CANOPY (%)
Commercial	53.0	11.9%	2.9	5.5%
Residential	288.8	64.8%	49.9	17.3%
Other (Right-of-Way, etc.)	103.9	23.3%	13.0	12.5%
TOTALS	445.8	100%	65.8	14.8%



TREE CANOPY IN A COMMERCIAL ZONE IN EDGEWATER.

Benefits of Edgewater's Tree Canopy

Over their lifespans, Edgewater's trees have collectively removed more than 2,000 tons of carbon from the atmosphere, valued at \$390,865. And each year, they provide quantifiable benefits totaling more than \$32,700, including air pollution removal, carbon sequestration, and stormwater capture (Table 3). **For methodology related to the UTC i-Tree Benefits Analysis, refer to Appendix A.**

TABLE 3. ECOSYSTEM BENEFITS OF EDGEWATER'S TREE CANOPY.

ECOSYSTEM BENEFITS	QUANTITY	VALUE
Annual Benefits		
Air Quality (lbs)	7,199	\$11,796
CO Removal (lbs)	68	\$45
NO ₂ Removal (lbs)	1,649	\$398
O ₃ Removal (lbs)	3,342	\$5,250
SO ₂ Removal (lbs)	200	\$22
PM10 Removal (lbs)	1,940	\$6,081
CO ₂ Sequestration (tons)	59	\$10,020
Avoided Stormwater Runoff (gals)	922,086	\$10,881
TOTAL ANNUAL BENEFITS		\$32,697
Structural Value		
CO ₂ Storage (tons)	2,292	\$390,864
TOTAL STRUCTURAL VALUE		\$423,561

Canopy Benefits

AIR QUALITY IMPROVEMENT

Edgewater's trees collectively remove 7,200 pounds of pollutants from the air each year. The value of this removal equates to nearly \$11,800 annually in avoided costs related to air pollution.

WATER QUALITY IMPROVEMENT

Collectively, all of Edgewater's trees capture over 922,000 gallons of stormwater each year. This is a value of over \$10,880 annually and contributes to improved local water quality and reduced flooding.

CARBON REDUCTION

Adding to the carbon that they have stored in their trunks, branches, leaves, and roots, Edgewater's trees sequester (absorb) an additional 59 tons of carbon dioxide (CO₂) from the atmosphere each year, valued at \$10,000 annually.

Priority Planting Locations

A Priority Planting Analysis was conducted to assess possible tree planting locations and assign a priority ranking based on their ability to address stormwater management, urban heat island mitigation, and social equity needs. **See Appendix A for the Priority Planting Analysis methodology.**

Available planting locations were overlaid with data about each priority. Stormwater management priority made use of the most recent aerial imagery, soil data, flood data, and benefit data to identify areas that generate large quantities of stormwater runoff (Map 1). Heat island priority was derived from averaging surface temperatures from recent data to find hotspots, or heat islands. Demographic and income data were used to prioritize planting areas in communities that are particularly vulnerable to environmental stressors that trees can help mitigate (Map 2).

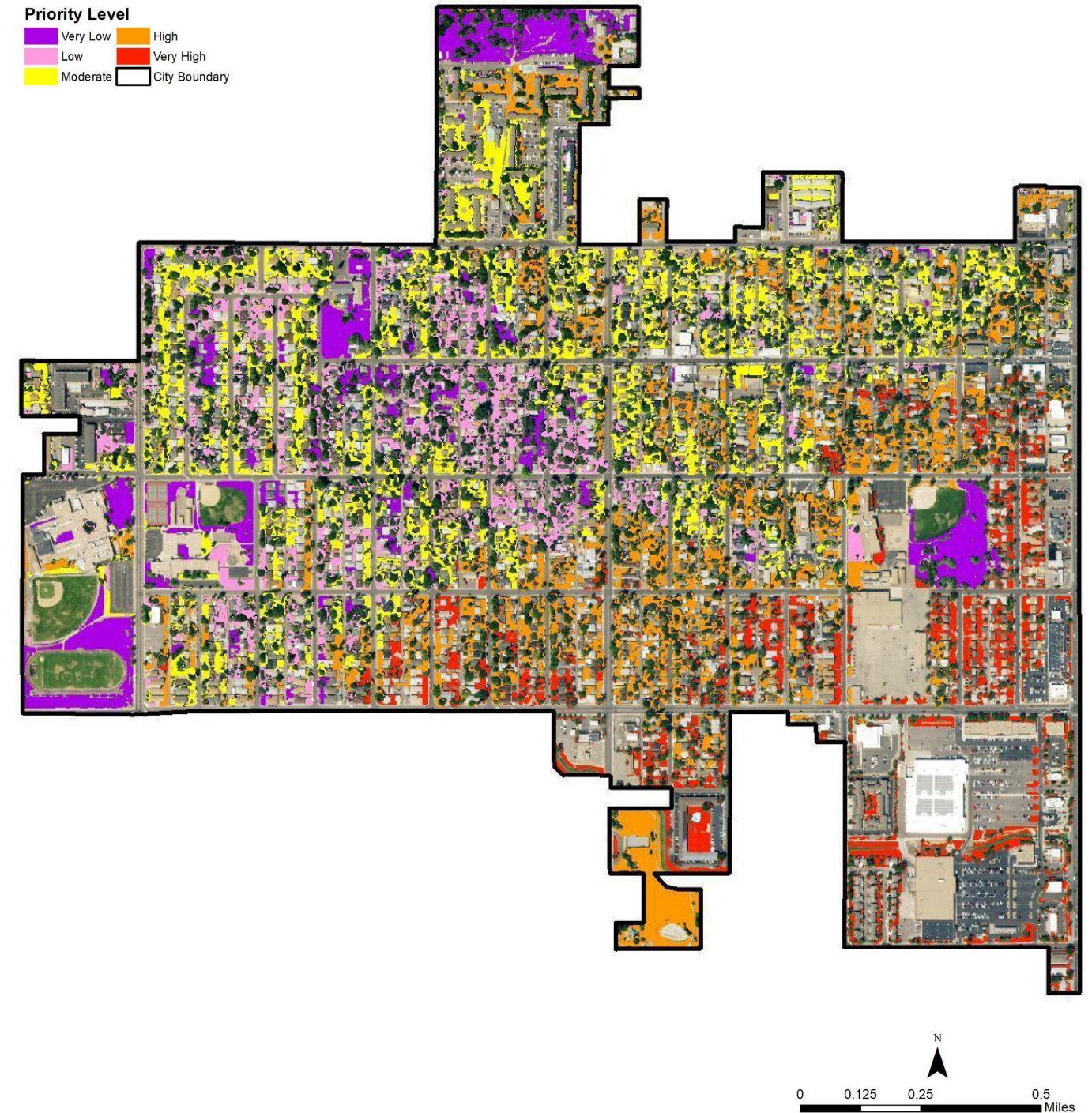
Overlapping all environmental and social indicators produced a composite priority planting rating (Map 3). The resulting map identifies areas that, if planted, have the highest potential to improve urban heat island effect, water quality, and quality of life for Edgewater’s residents. In total, **40 acres (36%) of the 111 acres of available land area for tree canopy expansion are categorized as High or Very High based on composite environmental and social equity analyses** (Table 4, Map 3).

Although this composite map represents a comprehensive view of which locations would provide the most overall benefits to Edgewater, it is worth considering specific community goals. For instance, if stormwater mitigation is determined to be a priority, Map 1 could be used to determine which planting locations would yield the highest stormwater benefits. Similarly, Map 2 can be used to identify which planting locations could be prioritized for social benefits. The Edgewater Traffic Calming Mobility Plan identifies key corridors to prioritize for traffic calming efforts, which could be used to plan planting locations if traffic calming were the targeted priority.

TABLE 4. POSSIBLE TREE PLANTING LOCATIONS, CLASSIFIED BY LEVEL OF PRIORITY FOR ENVIRONMENTAL AND SOCIAL BENEFIT.

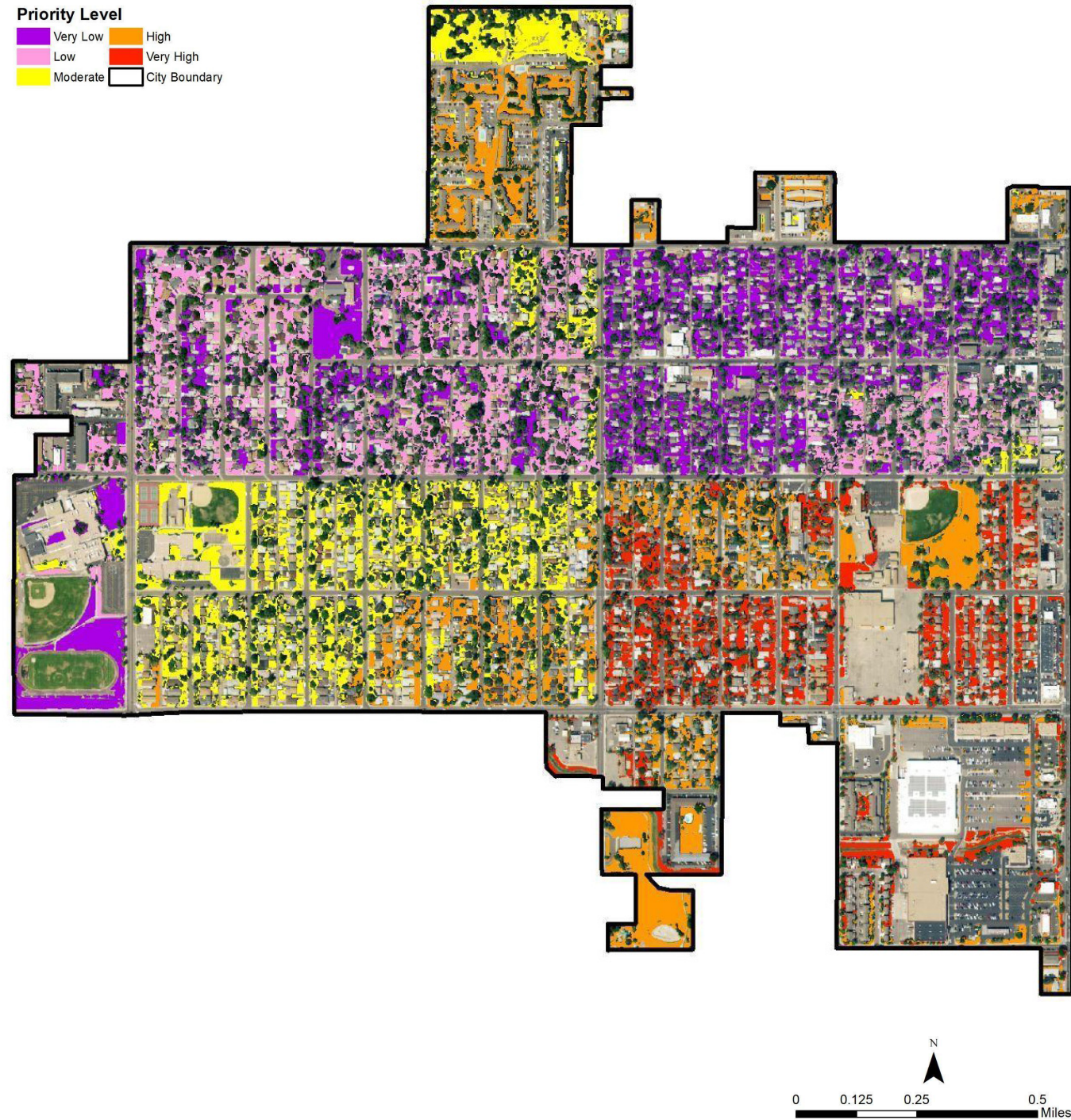
PRIORITY RANK	NUMBER OF LOCATIONS	ACRES	%
Very Low	1564	27.4	24.7%
Low	603	21.1	19.0%
Moderate	945	22.8	20.5%
High	830	24.2	21.8%
Very High	899	15.6	14.1%

STORMWATER PRIORITY PLANTING CLASSIFICATION



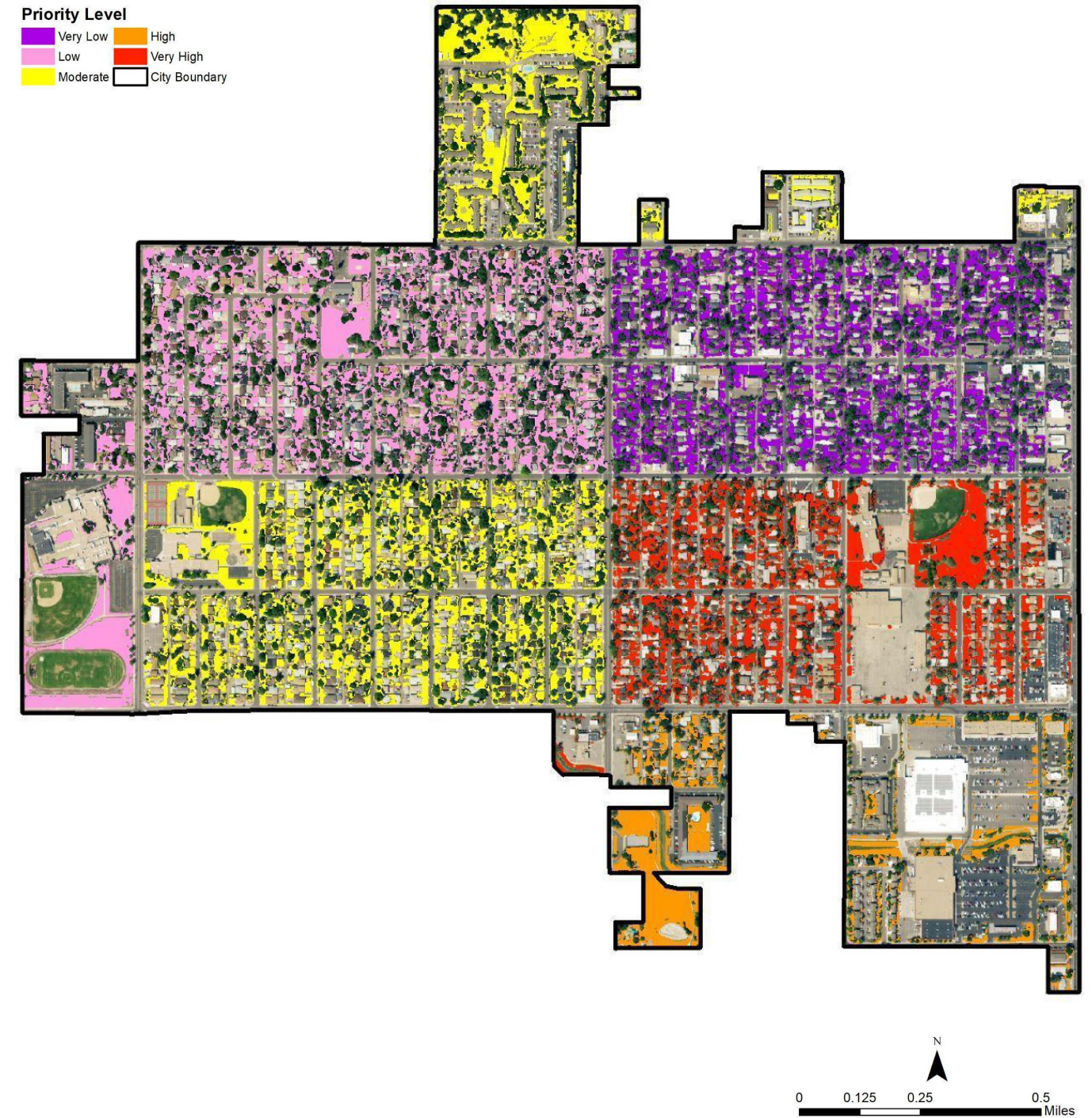
MAP 1. POSSIBLE TREE PLANTING LOCATIONS, CLASSIFIED BY LEVEL OF PRIORITY FOR STORMWATER MITIGATION BENEFIT.

SOCIAL COMPOSITE PRIORITY PLANTING CLASSIFICATION



MAP 2. POSSIBLE TREE PLANTING LOCATIONS, CLASSIFIED BY LEVEL OF PRIORITY FOR SOCIAL BENEFIT.

TOTAL COMPOSITE PRIORITY PLANTING CLASSIFICATION



MAP 3. POSSIBLE TREE PLANTING LOCATIONS, CLASSIFIED BY LEVEL OF PRIORITY FOR ENVIRONMENTAL AND SOCIAL BENEFIT.

EDGEWATER'S URBAN FOREST MANAGEMENT

In Edgewater, adjacent property owners are responsible for conducting public street tree maintenance (tree pruning, tree removal, and stump removal). The City of Edgewater is responsible for enforcing maintenance of trees and ensuring that right-of-way trees pose as little risk as possible to the public, as well as for the planting and maintenance of park trees. The City also cares for trees in parks and other public spaces.

An assessment of Edgewater's public tree management was conducted that included:

- Interviews with city staff and stakeholders.
- Review of documents, budget, staffing, and other program information.



The Indicators of a Sustainable Urban Forest—an assessment tool that uses industry standards and best management practices to assess a city's trees, how they are managed, and the community and stakeholders that influence it—was used to assess the information gathered.^{35,36} Edgewater was assessed on 27 urban forest indicators, broadly categorized into three components:

The Trees

The Players (community and stakeholders)

The Management

Appendix B provides Edgewater's complete indicators assessment. The assessment's findings identify the needs, opportunities, and challenges of the current conditions, outlined briefly below, which were used to help guide the recommendations and action items of this Plan.

At this time, the City's management of public trees is reactive (i.e., complaint driven)—there are no proactive inspections of street trees to ensure that tree maintenance is being conducted by residents, instead addressing community members' requests and complaints. The Plan's recommendations aim to help the City move towards a more proactive maintenance program. (See call-out box, "The Benefits of Proactive Maintenance.")

What is a public street tree?

A public street tree is any tree that falls within the public right-of-way. This is typically the space located between the sidewalk and street (known as the tree lawn) although it can extend beyond the sidewalk. Where sidewalks are not present, this space is the area between the curb/edge of road and the line where the right-of-way meets the property line.

The Benefits of Proactive Maintenance

Similar to other essential infrastructures like roads and utilities, trees require proactive and regular maintenance to guarantee safety, longevity, and optimal functionality. Embracing proactive tree maintenance offers a range of benefits:

IMPROVES PUBLIC SAFETY AND MANAGES RISK

By prioritizing the maintenance needs of trees with the highest risk, potential hazards are promptly addressed.

MITIGATES STORM DAMAGE

Regular structural pruning promotes the development of strong tree forms, reducing the impact of storms and minimizing damage.

REDUCES PER-TREE PRUNING COSTS

Exclusively reactive pruning done in response to requests, emergencies, and storms is inefficient.

MINIMIZES FUTURE TREE CARE COSTS

Trees that are consistently pruned, especially when young, require less maintenance as they mature, leading to long-term cost savings.

ENHANCES CUSTOMER SERVICE

Proactively pruning and removing trees helps prevent issues before they arise, improving overall customer satisfaction.

FOSTERS A SUSTAINABLE AND EQUITABLE URBAN FOREST

Systematically maintaining all public trees, rather than focusing solely on those with maintenance requests, ensures that every neighborhood benefits from a healthy and equitable tree canopy.

Staff and Contractors

The City of Edgewater's urban forestry duties are divided among City staff and contractors. Contractors perform the majority of tree planting, pruning, and removals. In-house duties are divided among various departments (see Figure 4).

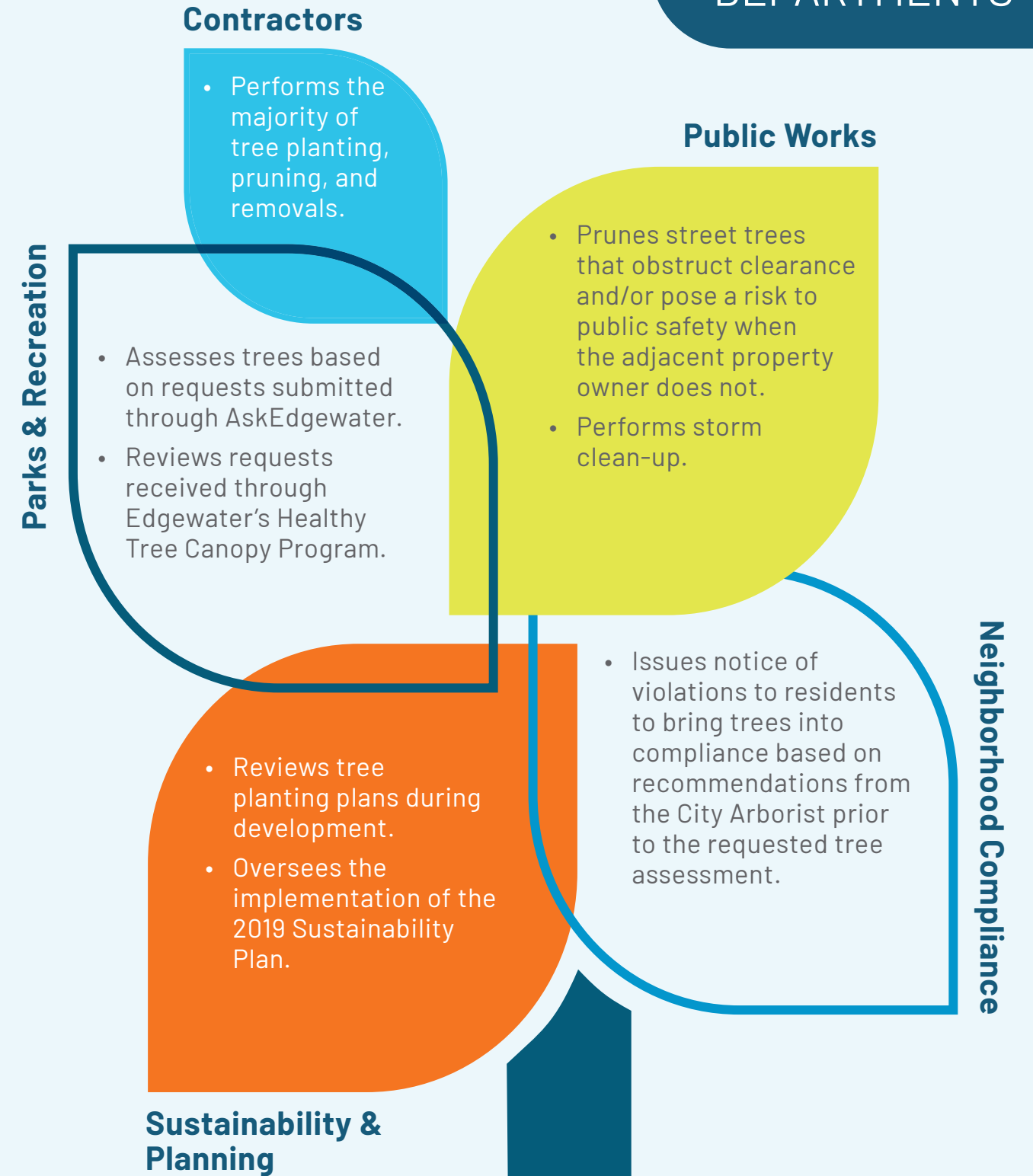
Edgewater has staff that maintain credentials in industry-recognized programs, including International Society of Arboriculture (ISA) Certified Arborist. The City should support efforts for staff to gain these credentials, acquire continuing education credits required to maintain certifications, and stay up to date on the latest arboricultural techniques and standards.

As previously stated, adjacent property owners are responsible for conducting street tree maintenance, while the City is responsible for enforcing street tree maintenance and conducting park tree planting and maintenance. Currently, enforcement of street tree maintenance is driven by calls and requests from other members of the community rather than City staff proactively notifying the property owner.



FIGURE 4. EDGEWATER'S DEPARTMENTS

EDGEWATER'S DEPARTMENTS



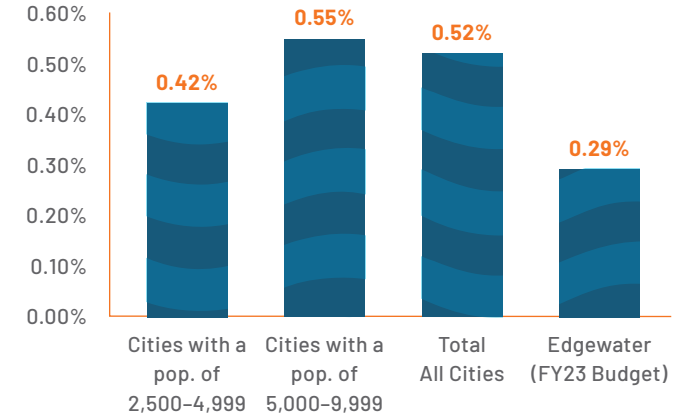


Budget and Funding

Edgewater's urban forestry activities are funded by the City's General Fund (Figure 5). The current level of funding is below the average for all cities nationally and cities with a population similar to Edgewater and has led the City to operate more on a complaint-driven basis. Previous years' budgets related to tree care were allocated in different departments. Moving forward, the City will take a unified, strategic approach to funding the urban forest. Adequate and stable funding is critical to ensure a sustainable, resilient, and growing urban forest in Edgewater. A comprehensive public tree inventory in place will be critical to determine the ideal level of funding and resources needed each year for City tree care and maintenance.

The City allocates a portion of their urban forestry budget to the Healthy Tree Canopy program, which provides reimbursement to private property owners to treat, remove, and replace ash trees. Many applications received were for ineligible activities (typically requests to maintain non-ash trees); therefore, the program could not spend the entire \$20,000 budget in FY22 or FY23. The program budget was reduced to \$10,000 for FY24.

Forestry Budget as a Percent of the Total Municipal Budget



Forestry Budget per Capita

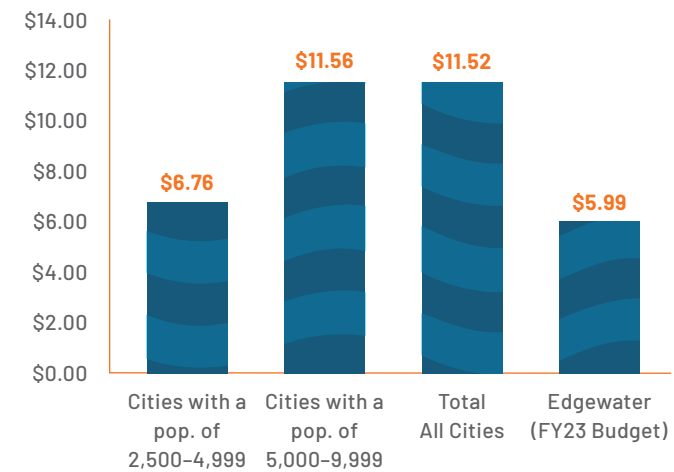


FIGURE 5. EDGEWATER'S URBAN FORESTRY BUDGET, AS A PERCENT OF THE TOTAL MUNICIPAL BUDGET (TOP) AND PER CAPITA (BOTTOM), COMPARED TO SIMILAR SIZED CITIES.

National & Regional Benchmarking

Edgewater's urban forestry program was benchmarked against national and regional communities using the report "Municipal Tree Care and Management in the United States: A 2014 Urban & Community Forestry Census of Tree Activities." This is the fifth edition of the report, which was first published in 1976. All monetary values have been adjusted for inflation as of the fall of 2023.

The 2014 Municipal Tree Care Census is based on data from 667 communities throughout the United States. The report contains information and statistics on urban forestry funding, policies, staffing, and other urban forest management program elements. The report analyzes data for all communities combined as well as for communities organized by geographic region and population size.

Benchmarking Edgewater's urban forestry program to national and regional communities is a helpful exercise to see how program elements align and identify program needs and priorities.^{1,2}

What is a tree inventory?

A tree inventory involves specific tree-by-tree data collection. Typically, this is limited to public trees (streets, parks, public properties) both for accessibility and because these are the trees that a municipality has the most direct influence over. Trees outside the public right-of-way can also be included in an inventory for line of sight or other clearance concerns.

Management Tools

TREE INVENTORY

A comprehensive, up-to-date, GIS-based public tree inventory is the foundation of municipal tree management. It provides information on the composition, condition, risk, and maintenance needs of the city's public trees. Data from the tree inventory is critical for the development of plans and programs that sustainably manage the urban forest to maximize its benefits and minimize its risks. It also aids in identifying work priorities and ensuring there are adequate resources, including funding, staff, and equipment to sustainably, efficiently, and cost effectively manage and care for the urban forest. The City of Edgewater Parks and Recreation staff conducted a limited inventory of public trees in 2020. The inventory is not complete, does not

include x/y coordinates, and did not collect data on tree condition and risk. Ideally, the inventory should be continued to include all street trees, park trees, and vacant street tree planting locations within city limits.

URBAN TREE CANOPY (UTC) ASSESSMENT

As a complement to a public tree inventory, a UTC assessment is a top-down approach to studying tree canopy—where it is located, how it is changing over time, and what opportunities exist for expansion. UTC assessments provide information about both public and privately owned trees throughout the city. As detailed previously in this section, Edgewater completed a UTC assessment in 2020 of imagery captured in 2017. Previously, the 2013 Metro Denver Urban Forest Assessment examined imagery captured in 2011 of communities in the area, including Edgewater. Although this cadence is in line with industry standards to conduct UTC assessments every 5–10 years, the methodologies differ in ways that make the canopy acreage and percentages of these studies not suitable for direct comparison. (See call-out box, "UTCs Throughout the Year.")

Conducting canopy assessments of future years in regular intervals will provide critical information on the trending direction of canopy cover in Edgewater. True canopy change analyses that look at historic and current canopy levels with the same methodology can provide a look into the past as well. Further, UTC assessment data can be used by the City to leverage grant funding, create targeted outreach, review effectiveness of tree protection and development ordinances, and as a tool in building and planning site reviews.

Tree Ordinance

City codes provide the foundation of a sustainable urban forestry program by establishing a regulatory framework for the protection, preservation, planting, and care of public and/or private trees. Edgewater's Code of Ordinances and the Water Efficient Landscape Code (2023; effective January 1, 2024) were reviewed using a set of criteria from the 2014 Municipal Tree Census and International Society of Arboriculture Ordinance Guidelines.^{37,38} The ordinance review (Appendix C) identifies several criteria that could be strengthened or are not currently addressed, including:

- Regulating public tree removal (aside from during construction). Property owners can remove public street trees without permission.
- Prohibiting damage or removal of trees on another person's property.
- Requiring a Certified Arborist to perform or oversee work on public trees or the adherence to ANSI A300 standards and best management practices for public trees.

There is a need to add additional tree protection measures in the code to preserve tree canopy. Updating these tree protection measures would necessitate additional resources, as there are not sufficient staff in place to proactively enforce regulations.




UTCs Throughout the Years

Over the years, advancements in technology have impacted the way Urban Tree Canopy (UTC) assessments are conducted. Technological advancements continue to enable higher resolution and improved data accuracy, and although this supports more effective urban forest management and planning efforts, it can result in a dataset that is not able to be compared to previous datasets.

Although the 2013 Metro Denver Urban Forest Assessment and the 2020 Edgewater UTC both provide the percentage of tree canopy, this was not a dedicated canopy change analysis.

It is critical that consistent methodology is used so that datasets are able to be compared and conclusions can be drawn to measure changes and understand how City policies and procedures are impacting canopy cover.

Existing Plans and Studies

-  TREES ARE NOT INCORPORATED
-  TREES ARE INCORPORATED BUT REQUIRE REVISION OR IMPLEMENTATION
-  TREES ARE FULLY INCORPORATED & IMPLEMENTED

The City of Edgewater is dedicated to continuously enhancing, improving, and innovating services for its community. In order to effectively do so, it is essential that the City incorporates urban forest considerations to all future planning efforts. Strategically integrating urban forestry into infrastructure and development initiatives, for example, can leverage trees and vegetation for stormwater management, air quality improvement, and overall environmental sustainability.

The following existing plans have been reviewed to explore how they may influence Edgewater’s urban forest and identify ways in which they can further integrate trees into their planning:



Edgewater Emerald Ash Borer Management Plan (2014)

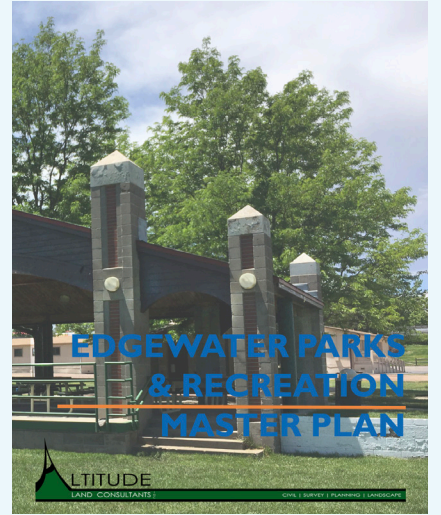
In 2014, the City developed an *Emerald Ash Borer (EAB) Management Plan* to prepare the city for the eventual arrival of the EAB. Edgewater’s plan was one of the first preventative plans developed for EAB in the Denver metro area. The EAB Plan outlines a variety of strategies to manage the city’s public ash tree population from a do-nothing approach to a hybrid approach that combines the management strategies of ash tree removal and replacement with chemical treatment. The Plan recommended the hybrid approach of removal and replacement of all public right-of-way trees nine inches in diameter at breast height (DBH) or less and the chemical treatment of select larger public right-of-way trees. Implementation began in earnest following adoption with the recommended removals and replacements. Edgewater also began a treatment program for select public right-of-way ash trees. While the Plan’s focus is on public trees, it acknowledges the impact that EAB will have on private property and recommended the creation of a program to help offset property owner costs. This recommendation was implemented with the establishment of the City’s Healthy Canopy Program to assist private property owners with costs of ash tree removal and replacement or treatment.

How to integrate this plan with the UFMP: Continue the use of this *Emerald Ash Borer (EAB) Management Plan* to support ash tree management in Edgewater.

Edgewater Parks and Recreation Master Plan

The *Edgewater Parks and Recreation Plan (2020)* incorporated community input to formulate comprehensive master plan designs tailored to each of Edgewater’s parks. These designs are poised to guide enhancements to the parks system over the next 10 years. The plan recognizes the role of trees in providing shade, screening, and traffic calming. However, the plan appears to have addressed current park tree condition, maintenance needs, and the preservation of mature trees only to a limited extent, which is noteworthy considering the volume of public comments expressing concerns in this regard.

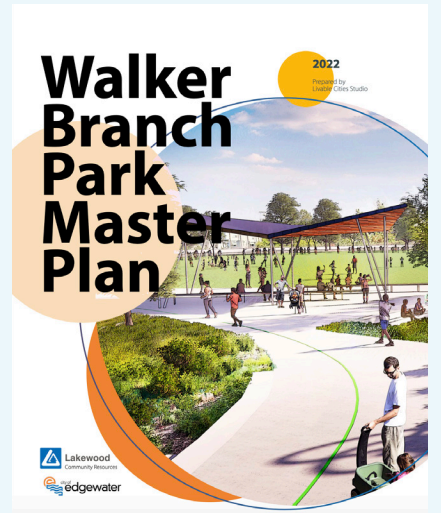
How to integrate this plan with the UFMP: Conduct a park tree inventory to assess the state of tree condition and maintenance needs in order to create a plan for addressing these needs. The identified action items (e.g., tree maintenance, removals, planting) can be incorporated into the *Parks and Recreation Plan’s* recommendations for each park.

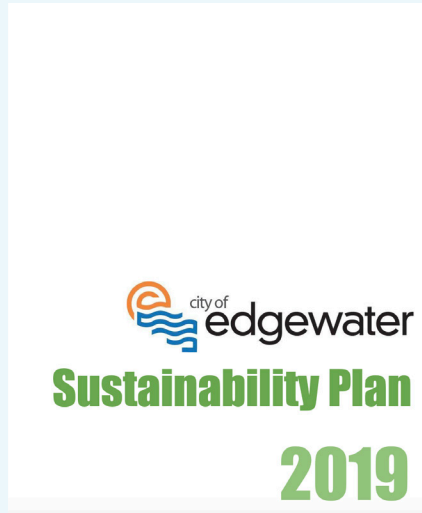


Walker-Branch Master Plan

The 2022 *Walker-Branch Park Master Plan* provides a vision for future park improvement by analyzing existing challenges and opportunities related to Access & Connectivity, Programming, Natural Systems, and Culture & Art. Combining these findings with the community’s priorities established through the project’s public engagement, a design plan is presented for each element of the park. The design plan recognizes trees as an integral part of park systems and fully incorporates the preservation of existing trees and the strategic planting of trees in locations to maximize the variety of benefits they offer.

How to integrate this plan with the UFMP: Utilize the Best Management Practices (BMPs) Guidelines that are recommended to be created (see Recommendation B, page 68 of the UFMP) for species selection, planting methods, and tree care strategies for the new trees planned in the *Walker-Branch Park Master Plan*.





Sustainability Plan 🌲 🌲

Edgewater’s 2019 *Sustainability Plan* provides a framework of recommendations targeting four categories—land and water, waste and materials, energy, and social vibrancy—to improve the city’s quality of life and long-term sustainability. Although this plan is broadly supportive of expanding the City’s tree program in regard to enhancing Edgewater’s land and water, there are further opportunities to include tree planting and preservation in support of the goals in other categories.

How to integrate this plan with the UFMP: Use the recommendations of the UFMP to support the *Sustainability Plan’s* action of expanding the tree program in Edgewater.



Sheridan Corridor Study 🌲 🌲 🌲

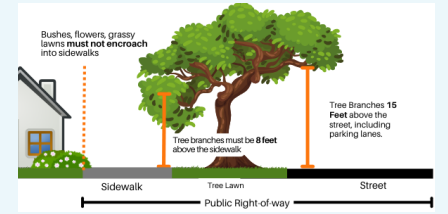
The *Sheridan Boulevard Multimodal Corridor Plan*, completed in 2022, was created in response to the recommendations to address vehicle/pedestrian safety concerns along Sheridan Boulevard Corridor between West 17th and West 26th avenues presented in the City’s 2019 *Mobility Plan*. The community’s priorities for Sheridan Boulevard were to make it a true boulevard with landscaped medians, better access management, intersection crossings, wider sidewalks with street trees, and more welcoming and sheltered transit stops. This Plan conducts a needs assessment of community members and stakeholders, using feedback to propose innovative design solutions for the different areas of the boulevard, including proposed tree preservation and planting.

How to integrate this plan with the UFMP: Enforce tree protection regulations upon implementation of all future development and reconstruction activities along the boulevard.

Edgewater Sidewalk Plan 🌲 🌲

The 2022 *Edgewater Sidewalk Improvement Plan* demonstrates the City’s dedication to enhancing accessible mobility choices suitable for people of every capability. The plan establishes a strategic structure that prioritizes the replacement of non-ADA compliant sidewalks and introduces creative approaches aimed at realizing Edgewater’s aspirations for pedestrian spaces. Although tree preservation, protection, or planting is not detailed in this plan, the Sidewalk Plan’s Appendix A lists items to consider or include in the creation of the UFMP, showing awareness of the need for BMP Guidelines.

How to integrate this plan with the UFMP: Utilize the BMP Guidelines that are recommended to be created (see Recommendation B, page 68 of the UFMP) to inform tree protection during construction activities, tree removal decisions, and proper species selection and tree care to prevent sidewalk conflict.



Edgewater Traffic Calming Mobility Plan 🌲 🌲 🌲

The 2019 *Traffic Calming Mobility Plan* identifies and prioritizes transportation investments and provides a framework for developing a network of streets that are designed, managed, and operated to enable safe access for all users. This Plan identifies trees as critical infrastructure in calming traffic and enhancing the city’s streets for pedestrians’ safety and comfort.

How to integrate this plan with the UFMP: Utilize the BMP Guidelines that are recommended to be created (see Recommendation B, page 68 of the UFMP) for site selection and proper tree spacing for new street trees plantings.



Walkability and Traffic Calming Update Meetings



Community Workshop
Monday, July 17 at 6:00pm
Edgewater Civic Center

Do you use 26th Ave from Sheridan to Pierce?



Walking Audit
Tuesday, July 18
26th Ave starts at 9:00am
Harlan St. starts at 11:00am

How about Harlan St. from 20th Ave to 26th Ave?



Open Studio
Wednesday, July 19 at 9:00am
Edgewater Civic Center

If so, we need your feedback!

www.EnvisionEdgewaterCO.com

Traffic Calming on Harlan Street and 26th Avenue Project 🌲 🌲

The ongoing *Traffic Calming on Harlan St. and 26th Ave. Project* aims to continue the vision of the 2019 *Traffic Calming Mobility Plan* with improvements along Harlan Street and W. 26th Avenue. The project has gathered community input for implementing traffic calming measures along these major roads, including tree planting.

How to integrate this plan with the UFMP: Tree planting may prove effective in the project’s goals with strategic design, species selection, planting practices, and tree care. Utilize the Best Management Practices Guidelines that are recommended to be created (see Recommendation B, page 68 of the UFMP).



25th Avenue Streetscape Design Project 🌲 🌲

The Edgewater Redevelopment Authority and City of Edgewater have begun updating historic 25th Avenue. The goal of the ongoing *Edgewater 25th Avenue Streetscape Project* is to support safer access for pedestrians and bicyclists, larger spaces for local businesses to extend into the right of way during warmer months, and improved drainage to reduce the relevant risk of flooding. Although tree planting is not formally included in the design plans, a landscape architect has identified areas in which trees could be planted.

How to integrate this plan with the UFMP: Utilize data from the priority planting analysis to identify possible tree planting locations, classified by level of priority for stormwater mitigation benefit (see Map 1, page 35 of the UFMP).

Streetscapes & Trees

In developed urban settings like a street, growing space for trees can be limited both above and below ground, competing with a number of other necessary functions, such as parking, bike lanes, accessible sidewalk space, utilities, and traffic signs.

When a tree is planted in a site without adequate space for its roots to grow, the tree’s health is negatively impacted, and its roots can conflict with sidewalks, causing issues, such as cracking and heaving. However, although trees are often blamed for sidewalk upheavals, engineering research from Ohio State University indicates that other factors can also be the primary source of sidewalk failure, including sidewalk design, construction methods and materials, soil characteristics, and time (as concrete sidewalks are typically engineered to last only 20–25 years). Implementing specific sidewalk designs using innovative soil engineering and/or alternative materials, selecting suitable tree species, and other proactive strategies should all be considered in the initial planning stages of a project to avoid future conflicts.

Further, above-ground space limitations, such as utility poles and traffic signs, often create conflict in streetscapes. Consequently, excessive pruning of a tree’s canopy becomes necessary, whereas proactive pruning and appropriate species selection could have prevented such detrimental measures.

To maximize tree growth, health, and benefits, as well as to improve public safety, reduce utility outages, increase walkability, reduce sidewalk/hardscape damage, and ensure compliance with the American with Disabilities Act (ADA), it is important to consider the amount of space available for a tree to grow.

Standard Plans Not Currently in Place

The following plans, guidelines, and procedures are not currently in place in Edgewater. Developing and implementing these frameworks would significantly bolster the City's operational efficiency across urban forestry management.

TREE INVENTORY ANALYSIS AND MANAGEMENT PLAN

An urban forest management plan uses tree inventory data to describe the character of the urban forest, identify risks, prioritize maintenance needs, and create a three- to five-year work plan. It differs from a master plan in that it is more narrowly focused on the maintenance needs of public trees. (See call-out box, "What's the difference between this Urban Forest Master Plan and a Management Plan?")

The completion of a management plan would allow Edgewater to develop a program to proactively enforce and regulate public street tree maintenance to reduce the risk to the public, property, and city infrastructure. A management plan would also help to develop a systematic, routine tree pruning cycle for park trees that would lead to enhanced tree health and more efficient service delivery.

An updated and complete tree inventory is a key component in developing an Urban Forest Management Plan. However, an incomplete inventory should not stop Edgewater from beginning to plan.

DISASTER PREPAREDNESS AND STORM RESPONSE PLAN

There is not currently a disaster response plan for trees in Edgewater. A disaster preparedness and storm response plan addresses how the City will respond to disasters in the community that impact trees. The plan includes staff, roles, contracts, response priorities, debris management, and communications. A disaster preparedness and storm response plan can be incorporated when developing a management plan or as a standalone document.

TREE PLANTING PLAN

A tree planting plan uses data from a tree inventory and/or UTC assessment to establish areas for tree planting to target in areas of greatest need to ensure equitable distribution of tree canopy, typically over a one- to five-year time frame. The plan would take into account the current planting and removal activities performed by the City in order to create realistic goals and identify the resources required to scale up these numbers. The City currently plants 5-10 public trees per year, conducted on an as-needed basis. Industry standard guidelines recommend planting, at minimum, the same number of street trees that are removed each year (currently between 15-20 trees) to preserve tree canopy cover. A tree planting plan can be incorporated when developing a management plan or as a standalone document.

BEST MANAGEMENT PRACTICES GUIDELINES

The City does not have formalized requirements for urban forestry activities, such as tree planting, maintenance, and removal. Developing concise guidance for these activities across the city can ensure that they align closely with both local goals and nationally accepted best practices. Guidelines should be created using the latest ANSI A300 standards to include:

- Site and species selection, such as minimum growing space, tree spacing (between trees, utilities, buildings, etc.), nursery stock standards.
- Planting practices.
- Irrigation, pruning, fertilization, and other tree maintenance activities.
- Tree protection measures during construction.
- Tree removal decision matrix.

With clear guidance and established best practices, the City can ensure trees are provided the appropriate care and maintenance to limit liabilities, promote tree retention, ensure tree longevity, and expand tree canopy citywide.

STANDARD OPERATING PROCEDURES

Effective channels of communication between City staff conducting operations regarding trees (e.g., Public Works, Neighborhood Compliance, Planning, Engineering, Parks Operations) are in place but standard operating procedures (SOPs) need to be developed to streamline communication, assign work, avoid duplication, establish timelines, and improve efficiencies. ■

What's the difference between this Urban Forest Master Plan and a Management Plan?

UFMPs such as this document typically contain long-term visionary planning and guidance for an urban forestry program overall. Management Plans are more targeted and are developed based on collected tree inventory data, allowing a municipality to budget quantities of tree activities per year (planting, pruning, removal) and discuss the species, size, and other diversity metrics recorded during the tree inventory.

The creation of a thousand forests is in one acorn.

—Ralph Waldo Emerson



02.

WHAT DO
WE WANT?

What do we want?

I think trees are a crucial part of community, visual resources, and environmental quality. An increase in trees will reduce the heat island effect, improve air quality, and better local visual resources.

—Edgewater Resident

COMMUNITY AND STAKEHOLDER ENGAGEMENT

During the development of the Edgewater UFMP, City staff, stakeholder groups, and residents were engaged to understand the issues, opportunities, and challenges they see for trees and the urban forest in Edgewater.

City Staff Engagement

City Staff Engagement was conducted through interviews, meetings, and a questionnaire with the following groups within the City of Edgewater:

- Parks and Recreation.
- Community Services/Public Works.
- Neighborhood Compliance.
- Sustainability/Planning.

Stakeholders Engagement

Stakeholders were engaged through participation in a Technical Advisory Committee and a Community Advisory Committee. Both groups met twice with the consultant to provide input on their respective elements of expertise regarding the plan.

TECHNICAL ADVISORY COMMITTEE

Technical Advisory Committee consisted of city staff members of Edgewater, Denver, and Lakewood.

COMMUNITY ADVISORY COMMITTEE

Community Advisory Committee included representation from residents, City Council, and the Sustainability Board/Tree Commission.

The information and feedback received during City Staff and Stakeholder Engagement was used in Edgewater's Indicators of a Sustainable Urban Forest assessment, which informed the Plan's recommendations and action items.

Community Engagement

The community was engaged through a community open house, a community survey, tree tags, and a photo contest.

COMMUNITY OPEN HOUSE

In June 2023, a community meeting was held at Vietnamese Central Baptist Church. The meeting was an open house format that allowed residents to provide comment and feedback on a variety of urban forestry related topics.

COMMUNITY SURVEY

The Edgewater Urban Forest Master Plan Community Survey was open from June 27–October 9, 2023. A total of 49 people responded to the survey which asked a range of questions about Edgewater's trees and their benefits and challenges to identify themes and priorities that should be considered during plan development.



TREE TAGS

Educational tags were hung on 31 public trees throughout Edgewater that displayed the carbon reduction, stormwater reduction, and electrical energy savings benefits provided by the tree. Tags included a QR code to prompt the visitor to take the Community Survey to increase survey participation and public awareness about the UFMP. The location of each tree, with further information about its species, size, condition, and benefits it provides were displayed on an interactive map on the City's website for further engagement and accessibility.

PHOTO CONTEST

Community members were given the chance to submit photos of their favorite tree with a quote about why they love it to win a prize. This contest acted as an initiative to promote awareness about the UFMP and to gather insight into the community's values.

Photo Contest Quotes from Edgewater Residents

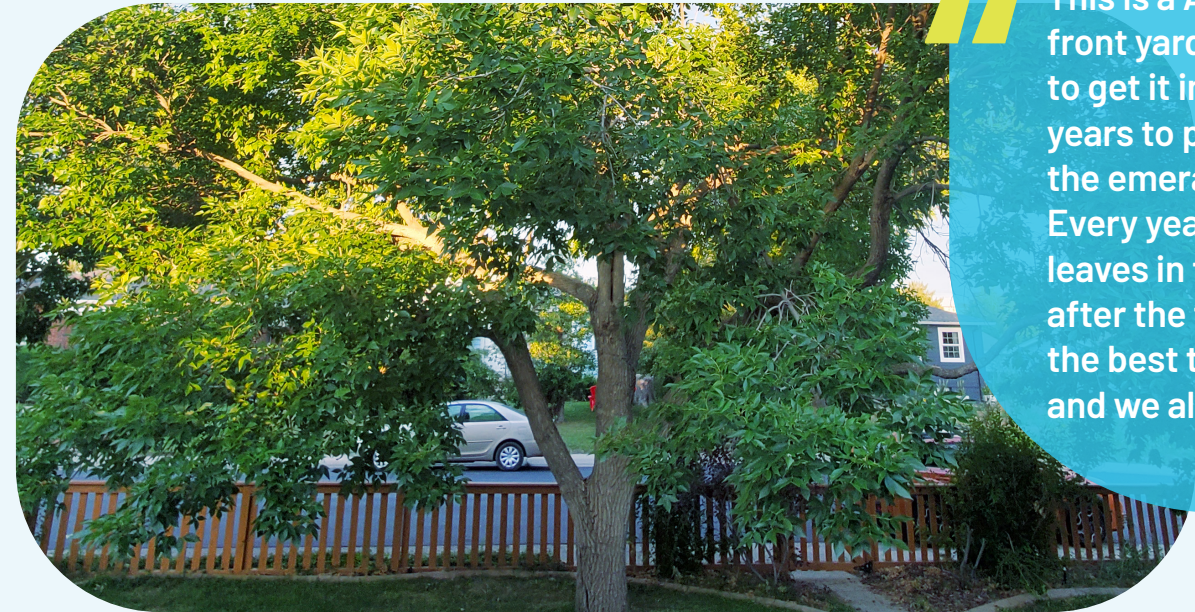
Heart tree, I love to see how you dress in your gala in each season of the year in the wonderful winter, autumn, summer and the beautiful first ones . . . always firm, full of life and inspiration.



I love this tree. It has beautiful white flowers in the spring. Butterflies are attracted to them along with other insects. It's one of the first plants to blossom besides tulips. It provides shade in the west summer sun, too.



This is a Ash tree in our front yard! We are sure to get it injected every 2 years to protect it from the emerald ash borer. Every year it drops 100% leaves in the 24 hours after the first snow! It's the best tree in Edgewater and we all know it!



The color change this tree has every fall always stops me in my tracks. While I was out walking my dog, I needed to snap a few photos of it!



WHAT DID WE HEAR DURING COMMUNITY ENGAGEMENT?

TOP 3 BENEFITS OF TREES

- Shading and cooling.
- Beauty.
- Air quality and pollution reduction.

TOP 3 CHALLENGES OF TREES

- Expensive to plant and maintain.
- Blocks signs and reduces visibility when driving.
- Can cause damage to properties.

WHICH AREAS OF EDGEWATER ARE IN THE GREATEST NEED FOR NEW TREE PLANTING OR GREEN SPACE?

- Along streets—**27%**
- Residential neighborhoods—**25%**
- Parks and public spaces—**20%**

WHICH TYPE OF TREE SPECIES WOULD YOU PREFER TO SEE MORE OF IN EDGEWATER?

- Large shade trees—**36%**
- Native trees—**32%**
- Flowering trees—**16%**
- Fruit-bearing trees—**14%**
- Evergreen trees—**2%**

HOW DO WE ENCOURAGE TREES ON PRIVATE PROPERTY?

- Tree Giveaway—**21%**
- Require new development to plant trees—**21%**
- Tree Selection Help—**18%**
- Tree Care Training—**12%**
- Parking Lot Tree Planting—**12%**
- Financial Incentives—**11%**



▲ FIGURE 6. SURVEY RESULTS FOR THE QUESTION "HOW DO YOU FEEL ABOUT THE STREET TREE IN FRONT OF YOUR HOME OR BUSINESS?"



THEMES AND PRIORITIES

The engagement activities and assessment of the Indicators of a Sustainable Urban Forest identified the following urban forestry themes and priorities in Edgewater. These themes are priorities were used to create the Plan's ensuing recommendations and action items.

Community Values Trees. The Edgewater community recognizes and places value on the benefits provided by trees, specifically in terms of air quality, shading, and cooling.

Communication, Education, Outreach and Engagement. There is a need to enhance outreach and education efforts, focusing on:

- Communicating the benefits of trees.
- Emphasizing the importance of private property tree planting.
- Clarifying street tree maintenance responsibilities.
- Selecting appropriate species and planting locations.
- Engaging rental property owners on tree care responsibilities.
- Expanding access to information about regional urban forestry initiatives, programs, and resources.
- Encouraging community members to participate in urban forestry activities with volunteer opportunities.

Tree Preservation and Protection. There is an interest in implementing stronger regulations to preserve large trees on both public and private property, requiring replacements for removed trees, and exploring incentive programs for tree planting and maintenance.

Tree Policies and Ordinances. Revisions to ordinances are needed to increase efforts to care for and maintain public street trees. However, limited staff for ordinance enforcement is an obstacle.

Best Management Practices and Standards. There is a need for the development of a unified urban forestry best management practices and standards manual that addresses items such as:

- Tree planting and care.
- Data management.
- Capital, construction, and development projects that impact public streets and park trees.

Tree Data. Incomplete tree inventory data hinders the City of Edgewater's ability to manage trees in parks or uniformly enforce and regulate street tree maintenance. Regular updates to tree inventory data are essential for setting canopy goals, measuring trends in growth/loss of the canopy, as well as creating prioritized planting plans.

Urban Forestry Program Improvements. Establishing Standard Operating Procedures and workflows, increasing staff, hiring consultants, and sharing services among neighboring communities are steps towards a proactive and responsive urban forestry program. When city projects impact trees, there is a need to improve the process of coordinating between city departments involved in the project. Further, the roles of personnel who work with trees (i.e., Sustainability Coordinator, Parks and Rec staff and arborist, Public Works, Neighborhood Compliance, etc.) need to be clarified to others in the group.

Canopy Loss. Threats such as climate change and pests/diseases cause loss in canopy over time. Mitigating this loss would likely involve implementing preservation and protection measures to retain existing trees, while increasing the number of trees planted each year.

Tree Planting. Increasing tree planting on both public (street trees, park trees, etc.) and private property is needed. Both public and private planting should begin in locations where they are needed most. Additionally, exploring options for incentivizing planting on private property would ensure resources, both financial and ecological, are distributed equitably. Any public or private planting initiative would benefit from a formal site selection process to verify the potential planting location can support a tree for its full lifespan (right tree, right place).

Tree Maintenance. The City's management of its public trees is categorized as reactive, but would benefit from transitioning to proactive (see call-out box, "Benefits of Proactive Maintenance" on page 22). Regularly inspecting all public trees would identify those with the most need for maintenance without relying on residents to first make a request. Additionally, more outreach and education may be needed to clarify the street tree maintenance responsibilities of adjacent property owners.

Budget. Edgewater's urban forestry management budget falls below national averages. The current level of funding, and piecemeal, project-based funding model (i.e., occasional funding for a tree planting event) cannot achieve a sustainable and resilient urban forest.

Species Selection/Climate Change. Environmental education programming is needed, specifically focusing on the relationship between climate change and trees, xeriscaping, climate-resilient species selection, and urban heat island mitigation. Additionally, any climate change action should be addressed regionally—involve neighboring municipalities and local organizations and partners to maximize resources and impact.

Partnerships. There is a need to further grow and foster partnerships with others who impact the urban forest in Edgewater (e.g., large landowners, green industry leaders, utility companies, developers, etc.). There is also a need to increase the pool of volunteers and resources supporting urban forestry initiatives.

Regional Collaboration. There may be opportunities to share services between neighboring municipalities, which could free up staff or increase overall capacity in Edgewater. Additionally, sharing examples of successful regional collaboration with the public may generate more support among peer communities. ■



03.

HOW DO WE
GET THERE?



How do we get there?

GOALS, RECOMMENDATIONS, & ACTION ITEMS

The goals, recommendations, and actions of the Edgewater UFMP are based on Edgewater’s assessment on the Indicators of a Sustainable Urban Forests, the themes and priorities identified during engagement, and outreach activities, along with information and data gathered and analyzed during the planning process.

Six main recommendations are given to help guide Edgewater in achieving each of their identified goals. The action items listed are potential steps that can be taken to support the implementation of each recommendation.

PLAN GOALS:

- Preserve and build a resilient urban forest for the future.
- Develop coordinated and aligned forestry management practices for the city.
- Strengthen public-private partnerships to improve urban forest stewardship.

RECOMMENDATION A

Leverage public and stakeholder support of Edgewater’s urban forest to better care for public street trees.

PLAN GOAL:

Strengthen public-private partnerships to improve urban forest stewardship.

NEED

In Edgewater, maintenance and care of public street trees is the responsibility of the adjacent property owner. Although this has always been the case, it is essential to increase public awareness about this responsibility and to provide resources that support good tree planting and maintenance practices.

DESCRIPTION

During the master planning process, the Edgewater community demonstrated a high level of support for trees and that trees are viewed as assets in the City. This indicates that residents have a good baseline understanding about the benefits of trees and are receptive to urban forestry efforts. Education and outreach can focus on increasing awareness about city ordinances, teaching planting and maintenance best practices, and promoting resources about advanced topics such as climate resilience and xeriscaping.

Themes & Priorities

- Edgewater values trees.
- Communication, education, outreach, and engagement.
- Tree maintenance.
- Funding.
- Partnerships.

Action Items:

- Improve transparency, public awareness of the responsibility, and participation in the care of Edgewater’s public street trees.
- Educate the community, including property owners and renters in the effective planting and care of street trees and those on private property to provide benefits to the Edgewater community.
- Revise the City’s Healthy Tree Canopy Program to expand financial assistance beyond pest management.
- Regularly assess the City’s urban forest and its management, benchmarking against the assessment conducted in this UFMP. Provide an annual update of these results to the public.

RECOMMENDATION B

Strengthen policies and procedures that preserve and protect trees.

PLAN GOAL:

Preserve and build a resilient urban forest for the future.

NEED

While tree benefits are shared by the entire community, at present, the City lacks a coordinated approach and/or program for public street trees. Additionally, the 2023 Water Efficiency Landscaping Code (WELC) updates added tree planting requirements for new developments. However, standards have still yet to be established regarding preservation and protection of Edgewater's trees.

DESCRIPTION

A permit system would allow the City to have a consistent approach to determine where, when, and why public street trees are removed from the right-of-way, and such a system could provide a mechanism for replacement. The City can also increase oversight of who conducts tree work within Edgewater and how that work is completed by establishing a tree care business license/arborist licensure program consistent with other Front Range communities.

Themes & Priorities

- Best management practices and standards.
- Urban forestry service improvements.
- Tree ordinances.
- Tree preservation and protection.
- Tree maintenance.

Action Items:

- Acknowledge 2023 WELC updates and continue this momentum to better preserve and protect trees on public and private land—for example, to regulate the removal of trees of a minimum size, or to protect trees during development.
- Develop a program to proactively enforce and regulate public street tree maintenance, to ensure that adjacent property owners are performing required street tree maintenance in a timely manner and to reduce the risk to the public, property, and city infrastructure.
- Establish replacement requirements for removal of public street trees.
- Improve consistency and coordination of private tree care company business license (arborist license) requirements. Current code only requires licensing for work on public trees. Expand this to include requirements to plant or maintain any trees within city limits.
- Develop, document, and implement standard operating procedures (SOPs) and processes to improve communication and collaboration among City departments and between the City and external organizations.
- Identify key staff for coordination of implementation of the UFMP.
- Investigate incentive programs as they relate to development and property improvements, such as reducing permit fees or expediting the permit for projects that preserve trees.
- Create best management practices (BMP) guides for both city staff and contractors regarding tree planting and maintenance.
- Include tree protection and preservation in all capital infrastructure projects that the City undertakes and with any future planning projects. This includes the preservation of as many existing trees as feasibly possible and allocating space and resources to plant trees in new landscapes.



RECOMMENDATION C

Enhance the city's urban forestry services through utilization of internal and external professionals.

PLAN GOAL:

Develop coordinated and aligned forestry management practices for the city.

NEED

Ordinances and procedures to protect trees are only as effective as their enforcement. Increased oversight of public street trees will require additional enforcement capacity, particularly if the City also chooses to create new permit processes to curb tree losses.

DESCRIPTION

Advanced training of existing staff, refocusing of urban forestry responsibilities, and targeted additions of contractors or new staff as needed can help address capacity issues within Edgewater's urban forestry services. Staff with training in both tree care and policies and procedures can help ensure that public street tree stewardship takes place in a way that protects and preserves tree benefits for the community.

Themes & Priorities

- Capacity.
- Urban forestry service improvements.
- Tree preservation and protection.
- Best management practices and standards.



Action Items:

- Create guidance for staff on updates to the City's public tree code protections, reviewing permits, and enforcing public street tree maintenance and protection regulations.
- Mirror improvements to ordinance and procedures by adapting staffing levels and roles for education and enforcement. This could include a full-time urban forestry inspector position, third party consultants, or staffing partnerships with neighboring communities.
- Provide training to staff on tree preservation and protection rules and regulations to enhance public education and enforcement.
- Support City staff in participating in arboriculture and urban forestry training opportunities.



RECOMMENDATION D

Take a data-driven approach to urban forest management and care.

PLAN GOAL:

Develop coordinated and aligned forestry management practices for the city.

NEED

Accurate, up-to-date data are needed to make informed decisions about urban forest management and strategic, sustainable, and resilient tree canopy growth. Although the City of Edgewater conducted an urban tree canopy (UTC) assessment in 2020 (analysis of 2017 imagery) that measured canopy cover within the city, a tree-by-tree inventory of all public street and park trees in Edgewater has not been conducted.

DESCRIPTION

Urban forestry industry standards recommend that data about trees and tree canopy be collected at regular intervals, approximately every 5-10 years. UTC assessments are a top-down view of tree canopy. Using aerial photography, UTC assessments describe where tree canopy is located and where it can be strategically increased to address environmental and social needs.

Tree inventories are a view of trees from the ground. They describe individual tree characteristics, including species, location, condition, and maintenance needs, that can be aggregated to learn more about the entire population such as its resilience to future threats including pests and diseases. Inventories focus on the trees a City has direct control over regarding maintenance and care and are thus typically limited to public street and park trees.

Themes & Priorities

- Tree data.
- Canopy loss.
- Urban forestry service improvements.
- Funding.
- Preparing for climate change.

Action Items:

- Establish a schedule and consistent methodology to regularly update Edgewater's UTC assessment and perform canopy change analysis of historic imagery to measure trends of canopy growth and loss.
- Conduct an inventory of all public street and park trees. This inventory should be managed by trained, International Society of Arboriculture (ISA) certified urban forestry professionals to ensure that accurate information is collected. Include data collection on tree size, health, and maintenance needs.
- Develop an urban forest management plan based on tree inventory data that:
 - » Identifies tree maintenance priorities.
 - » Creates work plans to address priorities and delineates responsible parties (for example, city or adjacent property owner).
 - » Identifies budget needs and secures adequate resources (e.g., staff, equipment, funding) to implement the management plan.
 - » Compares current staffing/resource levels with work plan.
 - » Identifies gaps and what is needed to address them (e.g., additional funding, hiring staff, contracting activities, etc.).
 - » Incorporates disaster preparedness and storm response when developing the Urban Forest Management Plan.
- Develop and implement a strategy that uses information from the tree inventory and urban forest management plan, when developed, to assess budget needs to proactively manage, enforce, and regulate public street tree maintenance.
- Perform thorough site analyses whenever resources permit to assess:
 - » Long-term viability for trees.
 - » Optimal tree species selection.
 - » Tree care strategies, including irrigation requirements tailored to soil type and structure.

RECOMMENDATION E

Develop a multi-year tree planting strategy, including both public and private property.

PLAN GOAL:

Preserve and build a resilient urban forest for the future.

NEED

Developing a strategy that both plans for public tree planting efforts and promotes the increase of tree canopy on private property helps to maximize the use of limited resources so that urban forestry investments are spent in line with Edgewater's priorities.

DESCRIPTION

A multi-year tree public planting plan outlines goals for the number, location, and type of trees that will be planted in Edgewater as well as their costs and maintenance plans. A priority planting analysis can identify environmental priorities, such as urban heat island mitigation, and social priorities, such as equity, to target plantings in locations where trees will have the greatest impact. Tying this planting plan to existing and future right-of-way plans assures that these projects are able to meet their mutual goals of streetscape livability and accessibility improvements.

For trees on private property, resources and education can be made available to promote residents to plant and care for trees outside public spaces. As noted in the Urban Tree Canopy (UTC) assessment, approximately 80% of tree canopy in Edgewater exists outside public spaces.

Planting strategies are important for proactively addressing threats such as climate change, new pests/diseases. Adding newer trees to the urban forest to mitigate the loss of trees that reach the end of their lifecycle helps protect urban forestry investments so that trees are sure to provide benefits for years to come.

Themes & Priorities

- Tree planting.
- Species selection.
- Preparing for climate change.
- Canopy loss.

Action Items:

- Identify areas and streets for planting and the number of trees to plant per year based on the prioritized planting map developed as part of the UFMP and criteria established by the City.
 - » Identify priority planting criteria, such as urban heat island mitigation.
 - » Coordinate with existing and future right-of-way improvement plans.
 - » Include provisions for climate change, xeriscaping, working with local nurseries, local/regional partnerships, Colorado Tree Coalition tree list.
- Educate residents on Colorado tree species/unique character of Colorado and use species that are tolerant and thrive in Edgewater.
- Establish a tree planting permit for public street tree planting.
- Ensure that planting recommendations work in conjunction with existing planning documents (e.g., Sidewalk Improvement Plan) and vice versa.
- Explore ways to increase canopy on private property including expansion of the Healthy Tree Canopy program, tree giveaway events, discount tree planting events, or similar.
- Develop an overall City canopy goal.



RECOMMENDATION F

Build regional partnerships to support urban forestry operations.

PLAN GOAL:

Strengthen public-private partnerships to improve urban forest stewardship.

NEED

Urban forestry operations compete with many other needs to stretch small city governments. Pooling resources with neighboring cities and leveraging resources made available throughout the front range and the state of Colorado can be ways to provide additional capacity for Edgewater's urban forestry operations.

DESCRIPTION

Small city governments can collectively share intangible assets, such as lessons learned, as well as tangibles including policies, staff, contractors, and equipment. Tools from the Colorado Tree Coalition may be useful for tracking Champion trees (trees of significant size and/or historical recognition) and risk management needs. State resources are available to assist with tree planting, ash/invasive tree species mapping, and storm and disaster preparedness. Lastly, Denver's current urban forest strategic planning effort may be a useful source of information and lessons for Edgewater as it undertakes its own planning efforts.

Action Items:

- Coordinate with bordering municipalities (for example, Wheat Ridge, Lakewood), county government, and regional stakeholders on urban forestry policies and plans.
- Share services and equipment with neighboring municipalities.
- Utilize county, state, and national tools and resources to track ash/invasive species, build disaster preparedness, build climate resilience, and fund progress.

Themes & Priorities

- Regional collaboration.
- Urban forestry service improvements.
- Partnerships.
- Capacity.



ACTION AND IMPLEMENTATION

Table 5 expands upon the recommendations and action items in Section 3 to provide timelines and responsible parties for implementation. While the strategy provides general timeframes, it is essential for the plan's implementation to remain adaptable and dynamic. This flexibility allows for adjustments in response to evolving needs, priorities, available resources, and opportunities within Edgewater.

Although numerous recommendations in the UFMP necessitate the allocation of City resources and effort, the plan also presents opportunities for active involvement from residents, stakeholders, and partners. Encouraging collaboration and participation from these groups can significantly contribute to the successful implementation of the UFMP. 🟡

TABLE 5. ACTION AND IMPLEMENTATION PLAN.

RECOMMENDATION A. Leverage public and stakeholder support of Edgewater's urban forest to better care for public street trees.		
Action Item	Time Frame	Lead Department
Improve transparency, public awareness of the responsibility, and participation in the care of Edgewater's public street trees.	First Year, in-progress (0-1 years)	Staff: Parks & Recreation, Community Development, Public Works
Educate the community, including property owners and renters in the effective planting and care of street trees and those on private property to provide benefits to the Edgewater community.	First Year, in-progress (0-1 years)	Provided in part by the Tree Guide brochure as part of this planning effort, revise over time as needed Staff: Parks & Recreation, Community Development
Revise the City's Healthy Tree Canopy Program to expand financial assistance beyond pest management.	First Year, in-progress (0-1 years)	Staff: Parks & Recreation, Community Development
Regularly assess the City's urban forest and its management, benchmarking against the assessment conducted in this UFMP. Provide an annual update of these results to the public.	First Year, in-progress (0-1 years)	Staff: Parks & Recreation, Community Development

RECOMMENDATION B. Strengthen policies and procedures that preserve and protect trees.		
Action Item	Time Frame	Lead Department
Acknowledge 2023 Water Efficiency Landscaping Code (WELC) updates and continue this momentum to better preserve and protect trees on public and private land—for example, to regulate the removal of trees of a minimum size, or to protect trees during development.	Short-Term (1-3 years)	Staff: Community Development
Develop a program to proactively enforce and regulate public street tree maintenance, to ensure that adjacent property owners are performing required street tree maintenance in a timely manner and to reduce the risk to the public, property, and city infrastructure.	Short-Term (1-3 years)	Staff: Parks & Recreation, Community Development, Public Works May require outside technical expertise.
Identify key staff for coordination of implementation of the UFMP.	First Years (0-1 years)	Staff: Parks & Recreation, Community Development, Public Works
Establish replacement requirements for removal of public street trees.	Short-Term (1-3 years)	Staff: Parks & Recreation, Community Development
Improve consistency and coordination of private tree care company business license (arborist license) requirements. Current code only requires licensing for work on public trees. Expand this to include requirements to plant or maintain any trees within city limits.	Short-Term (1-3 years)	Staff: Community Development, City Clerk
Develop, document, and implement standard operating procedures (SOPs) and processes to improve communication and collaboration among City departments and between the City and external organizations.	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development
Investigate incentive programs as they relate to development and property improvements, such as reducing permit fees or expediting the permit for projects that preserve trees.	Short-Term (1-3 years)	Staff: Community Development
Create best management practices (BMP) guides for both city staff and contractors regarding tree planting and maintenance.	Short-Term (1-3 years)	Staff: Public Works, Community Development May require outside technical expertise.
Include tree protection and preservation in all capital infrastructure projects that the City undertakes and with any future planning projects. This includes the preservation of as many existing trees as feasibly possible and allocating space and resources to plant trees in new landscapes.	Ongoing	Staff: Parks & Recreation, Public Works, Community Development

RECOMMENDATION C.

Enhance the City’s urban forestry services through utilization of internal and external professionals.

Action Item	Time Frame	Lead Department
Educate staff on updates to the City’s public tree code protections, reviewing permits, and enforcing public street tree maintenance and protection regulations.	Ongoing	Staff: Community Development
Mirror updates to ordinance and procedures by increasing staffing levels and roles for education and enforcement.	Ongoing	Staff: Parks & Recreation, Public Works, Community Development
Provide training to staff on tree preservation and protection rules and regulations to enhance public education and enforcement.	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development
Support City staff in participating in arboriculture and urban forestry training opportunities.	Ongoing	Staff: Parks & Recreation, Public Works, Community Development

RECOMMENDATION D.

Take a data-driven approach to urban forest management and care.

Action Item	Time Frame	Lead Department
Establish a schedule and consistent methodology to regularly update Edgewater’s UTC assessment and perform canopy change analysis of historic imagery to measure trends of canopy growth and loss.	Mid-Term (3-6 years)	Staff: Parks & Recreation, Community Development May require outside technical expertise.
Utilize UTC-driven canopy data to develop an overall City canopy cover goal.	Mid-Term (3-6 years)	Staff: Parks & Recreation
Conduct an inventory of all public street and park trees.	Short-Term (1-3 years)	Staff: Parks & Recreation May require outside technical expertise.
Develop an urban forest management plan based on tree inventory data.	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development May require outside technical expertise.
Develop and implement a strategy that uses information from the tree inventory and urban forest management plan, when developed, to assess budget needs to proactively manage, enforce, and regulate public street tree maintenance.	Mid-Term (3-6 years)	Staff: Parks & Recreation, Public Works, Community Development
Perform thorough site analyses for public planting efforts to assess: <ul style="list-style-type: none"> • Long-term viability for trees; • Optimal tree species selection; • Tree care strategies, including irrigation requirements tailored to soil type and structure. 	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development

RECOMMENDATION E.

Develop a multi-year tree planting strategy, including both public and private property.

Action Item	Time Frame	Lead Department
Identify areas and streets for planting and the number of trees to plant per year based on the prioritized planting map developed as part of the UFMP and criteria established by the City.	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development
Educate residents on Colorado tree species / unique character of Colorado and use species that are tolerant and thrive in Edgewater.	First Year, in-progress (0-1 years)	Staff: Parks & Recreation, Community Development
Establish a tree planting permit for public street tree planting.	Short-Term (1-3 years)	Staff: Community Development
Ensure that planting recommendations work in conjunction with existing planning documents (e.g. Sidewalk Improvement Plan) and vice versa.	Short-Term (1-3 years)	Staff: Community Development
Explore ways to increase canopy on private property including expansion of the Healthy Tree Canopy program, tree giveaway events, discount tree planting events, or similar.	Short-Term (1-3 years)	Staff: Parks & Recreation, Community Development

RECOMMENDATION F.

Build regional partnerships to support urban forestry operations.

Action Item	Time Frame	Lead Department
Coordinate with bordering municipalities, county government, and regional stakeholders on urban forestry policies and plans.	Ongoing	Staff: Parks & Recreation, Community Development
Share services and equipment with neighboring municipalities.	Short-Term (1-3 years)	Staff: Parks & Recreation, Public Works, Community Development
Utilize county, state, and national tools and resources to track ash/invasive species, build disaster preparedness, build climate resilience, and fund progress.	Ongoing	Staff: Parks & Recreation, Community Development



04.

HOW ARE
WE DOING?



How are we doing?

MEASURING PROGRESS

The Edgewater UFMP is intended to be a living document that will continuously evolve. To serve as an effective tool in fostering a sustainable and resilient urban forest in Edgewater, both the ongoing implementation of the plan and the state of Edgewater's urban forest require regular monitoring and assessment. Periodic evaluations will help to pinpoint successes in the urban forestry plan that can be used in building momentum around trees and also identify emerging opportunities and challenges that may necessitate incorporation into the Plan. This proactive approach ensures the plan's adaptability and relevance over time.

Periodic Review and Updates of the UFMP

As a living document, the Plan is designed to be periodically reviewed and updated every 3–5 years based on the changing needs of Edgewater's trees, community priorities, new opportunities, and successes in the Plan's implementation. The data and information from the other tools to measure progress, detailed below, are essential for conducting the review and updating the Plan.

TREE INVENTORY UPDATES

A public tree inventory provides critical information to manage and maintain Edgewater's public tree resource and provides an opportunity to monitor the resource over time. Urban forestry industry standards recommend that municipal tree inventories are updated on a regular basis, as planting, maintenance, and removals occur and fully re-inventoried at least once every 7–10 years. As Edgewater's public trees are inventoried and re-inventoried, the City can monitor changes in:

- Tree genus and species composition.
- Number and location of trees.
- Size/age composition.
- Condition.
- Maintenance needs.

Assessing these changes can help measure progress in implementing the UFMP's recommendations.

Note: The original inventory data should be downloaded after the inventory has been completed to provide the baseline data to compare with future inventory data.

CHANGES IN TREE BENEFITS

As discussed in Section 2, Edgewater's trees provide quantifiable benefits to the community. Measuring Edgewater's progress in growing and caring for its urban forest can be done by examining changes in these tree benefits. Did the amount of air pollutants removed increase or decrease over time? Does the canopy intercept more gallons of stormwater? Has the amount of carbon stored increased? i-Tree—the USDA Forest Service's suite of tools that measures and quantifies the benefits of trees—can be used to measure changes in tree benefits over time. The software tools in i-Tree are routinely updated based on the latest science and research. To measure changes in benefits over time both the new and previous UTC assessment data must be analyzed through the same version of i-Tree.

INDICATORS OF A SUSTAINABLE URBAN FOREST

The Indicators of a Sustainable Urban Forest were used to establish a baseline assessment of Edgewater's urban forest—broadly categorized into three groups: **The Trees**, **The Players**, and **The Management**.

As the UFMP is implemented periodic re-assessments (every 3–5 years) of the Indicators of a Sustainable Urban Forest should be conducted. The re-assessments can highlight successes in implementation, identify areas for improvement, and establish new program priorities, recommendations, and action steps that can be used in UFMP updates.

CONCLUSION

The Urban Forest Master Plan underscores the vital role of trees in enhancing the quality of life, resilience, and sustainability of Edgewater. To maximize their benefits now and preserve them for the future, the Plan outlines six recommendations and a total of 30 action steps that Edgewater can take to move toward establishing an urban forestry program. These action steps chart a proactive course for managing, growing, preserving, and caring for Edgewater's trees.

A partnership of City administration, residents, and businesses can stop tree canopy loss by stewarding trees in the spaces where people live, work, and play. Residents and other private stakeholders can do their part by supporting local tree efforts and by planting and preserving trees on private property. Together, the community can cultivate an abundant, healthy, sustainable, and resilient urban forest in Edgewater. 🌱





A.

Appendices

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APPENDIX A. UTC METHODOLOGIES

Ecosystem Services

1. HOW TREE CANOPY BENEFITS ARE CALCULATED:

1.1 Air Quality

The i-Tree Canopy v7.1 Model was used to quantify the value of ecosystem services for air quality. i-Tree Canopy was designed to give users the ability to estimate tree canopy and other land cover types within any selected geography. The model uses the estimated canopy percentage and reports air pollutant removal rates and monetary values for carbon monoxide (CO), nitrogen dioxide (NO²), ozone (O³), sulfur dioxide (SO²), and particulate matter (PM)(Hirabayashi 2014).

Within the i-Tree Canopy application, the U.S. EPA's BenMAP Model estimates the incidence of adverse health effects and monetary values resulting from changes in air pollutants (Hirabayashi 2014; U.S. EPA 2012). Different pollutant removal values were used for urban and rural areas. In i-Tree Canopy, the air pollutant amount annually removed by trees and the associated monetary value can be calculated with tree cover in areas of interest using BenMAP multipliers for each county in the United States.

To calculate ecosystem services for the study area, canopy percentage metrics from UTC land cover data performed during the assessment were transferred to i-Tree Canopy. Those canopy percentages were matched by placing random points within the i-Tree Canopy application. Benefit values were reported for each of the five listed air pollutants.

1.2 Carbon Storage and Sequestration

The i-Tree Canopy v7.1 Model was used to quantify the value of ecosystem services for carbon storage and sequestration. i-Tree Canopy was designed to give users the ability to estimate tree canopy and other land cover types within any selected geography. The model uses the estimated canopy percentage and reports carbon storage and sequestration rates and monetary values. Methods on deriving storage and sequestration can be found in Nowak et al., 2013.

To calculate ecosystem services for the study area, canopy percentage metrics from UTC land cover data performed during the assessment were transferred to i-Tree Canopy. Those canopy percentages were matched by placing random points within the i-Tree Canopy application. Benefit values were reported for carbon storage and sequestration.

1.3 Stormwater

The i-Tree Hydro v6.0 Model was used to quantify the value of ecosystem services for stormwater runoff. i-Tree Hydro was designed for users interested in analysis of vegetation and impervious cover effects on urban hydrology. This most recent version (v6.0) allows users to report hydrologic data on the city level rather than just a watershed scale giving users more flexibility. For more information about the model, please consult the i-Tree Hydro v6.0 manual (<http://www.itreetools.org>).

To calculate ecosystem services for the study area, land cover percentages derived for the project area and all municipalities that were included in the project area were used as inputs into the model. Precipitation data from 2005–2012 was modeled within the i-Tree Hydro to best represent the average conditions over an eight year time period. Model simulations were run under a Base Case as well as an Alternate Case. The Alternative Case set tree canopy equal to 0% and assumed that impervious and vegetation cover would increase based on the removal of tree canopy. Impervious surface was increased 2% based on a percentage of the amount of impervious surface under tree canopy and the rest was added to the vegetation cover class. This process was completed to assess the runoff reduction volume associated with tree canopy since i-Tree Hydro does not directly report the volume of runoff reduced by tree canopy. The volume (in cubic meters) was converted to gallons to retrieve the overall volume of runoff avoided by having the current tree canopy. Through model simulation, it was determined that tree canopy decreases the runoff volume in the project area by 922,086 gallons per year using precipitation data from 2005–2012. This equates to approximately 13,885 gallons per acre of tree canopy (922,086 gals/66.41 acres).

To place a monetary value on storm water reduction, the cost to treat a gallon of storm/waste water was taken from McPherson et al., 1999. This value was \$0.0118 per gallon. Tree canopy was estimated to contribute roughly \$10,881 to avoided runoff annually to the project area.

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Methods and Data Analysis for Prioritized Planting

In order to create a priority planting plan, the locations for planting must first be determined. Planting location polygons were created by taking all grass/open space and bare ground areas and combining them into a single dataset. Non-feasible planting areas such as agricultural fields, recreational fields, major utility corridors, airports, rights-of-way, etc. were restricted and noted as a query-able attribute in the final GIS dataset. This layer was reviewed and approved by the city of Edgewater before the analysis proceeded. The remaining planting space was consolidated into a single feature and then, exploded to multipart features creating separate, distinct polygons for each location. The final step broke polygons up again to note planting restrictions as their own feature.

Stormwater

To identify and prioritize planting potential based on the stormwater analysis, locations were assessed with several environmental features, including proximity to hardscape, proximity to canopy, floodplain proximity, soil permeability, slope, and soil erosion factor (K-factor). These factors are based on numerous historic projects completed by DRG for stormwater analysis. Each factor was assessed using data from various sources and analyzed using separate grid maps. Values between zero and four (with zero having the lowest priority) were assigned to each grid assessed. A value of zero indicates that this classified piece of information yielded little or no overall value within the dataset. The grids were overlain with the values averaged to determine

the priority levels at an area on the map. A priority ranging from Very Low to Very High was assigned to areas on the map based on the calculated average of all grid maps using quantile classification breaks within ArcGIS. This step of the process was completed to statistically subset data evenly into five classes of increasing importance. Areas of higher potential for runoff and erosion were considered higher priority due to their ability to diminish water quality within urban areas.

Social Equity

To identify and prioritize planting potential based on a Social Equity, data was analyzed including census data, EnviroScreen data and disproportionately impacted areas. Census data included vulnerable ages, renter percent. The EnviroScreen data included heart disease and Asthma rates. The impacted areas included the amount of justice categories that affect each area. Each factor was separated into its own grid map. The values were broken into five classes and ranked from 0–4 (with 0 being the lowest priority and 4 being the highest priority). These factors were classified into five final rankings from Very Low to Very High for each of the social equity and public health criteria using quantile classification breaks within ArcGIS. This step of the process was completed to statistically subset data evenly into five classes of increasing importance. Higher priorities of social equity give a focused effort of providing trees and tree canopy to all citizens regardless of social status. These priority areas are deemed to have the greatest return due to their importance of providing residents of the community equal access to nature.

Composite Priority

Using zonal statistics, each raster data for stormwater and social equity were used to calculate a total aggregate value for each individual planting location polygon. The values for each factor were statistically binned into five classes using quantile classification within ArcGIS. This classification method distributes values into groups that have an equal number of values. The higher numbers indicate higher priority for planting when assessing all factors through the same scope. These classes ranged from Very Low to Very High to mirror the criteria group rankings. These rankings were then used to combine all criteria to create a composite ranking based on all analytical factors pertaining to the city.

Once the process of identifying priority was completed, the development of planting strategies will be the next step in the process. While available planting sites may ultimately be planted over the next several decades, the trees that are planted in the next few years, should be planned for areas in most need, and where they will provide the most benefits and return on investment given a particular set of circumstances and desires to fulfill certain obligations to the community. The City of Edgewater can choose to target individual factors like heat islands for certain projects or select from the composite ranking to get the most return on investment across the board.

GROUP	CRITERIA	DATA ORIGIN	LAST UPDATE	WEIGHTING
Stormwater	Distance to Hardscape	Edgewater Urban Tree Canopy Assessment	2017	0.30
	Distance to Canopy	Edgewater Urban Tree Canopy Assessment	2017	0.10
	Floodplain	National Hydrologic Dataset	2023	0.20
	Soil Permeability	Natural Resource Conservation Service	2023	0.15
	Soil Erosion	Natural Resource Conservation Service	2023	0.15
	Slope	National Elevation Dataset	2023	0.10
Census	Vulnerable Ages (5 and under & 65 and older)	U.S. Census Bureau	5-year American Community Survey 2017-2021	
	Renter Percent	U.S. Census Bureau	5-year American Community Survey 2017-2021	
	Asthma Hospitalization Rate	Colorado EnviroScreen v1 Block Group	2023	
	Heart Disease in Adults	Colorado EnviroScreen v1 Block Group	2023	
	Disproportionately Impacted Communities	CDPHE Disproportionately Impacted Communities	2021	

Weighted Overlay Equation for stormwater priority:

$$(\text{"ImperviousDistance"} * 0.30) + (\text{"Floodplain"} * 0.20) + (\text{"SoilPermeability"} * 0.15) + (\text{"SoilErosion"} * 0.15) + (\text{"CanopyDistance"} * 0.10) + (\text{"SlopePercent"} * 0.10)$$

Data Details

STORMWATER

DISTANCE TO HARDSCAPE

Source: Edgewater Urban Tree Canopy Assessment

Data: Distance to Impervious

Distance to hardscape is derived by selecting the impervious surfaces data from the Edgewater landcover layer. This impervious raster is used as an input layer into the Euclidean Distance tool within ArcGIS to create a layer that measures straight-line distance from each impervious surface location within the city. These distances are grouped into five classes from 0-4 with 4 being the closest to impervious surfaces and, therefore, the highest priority. The further a location is from an impervious surface, the lower the ranking it receives. A ranking of 0 is given to locations that are currently represented as impervious surfaces in the land cover data while the value of 4 indicates that the open area next to the impervious surface is available for planting trees to reduce the amount of runoff and sedimentation.

DISTANCE TO HARDSCAPE	
Rank	Distance to Impervious (ft)
0	0
1	Over 100
2	51-100
3	26-50
4	1-25

DISTANCE TO CANOPY

Source: Edgewater Urban Tree Canopy Assessment

Data: Distance to Canopy

Distance to canopy is derived by selecting the tree canopy data from the Edgewater landcover layer. This canopy raster is used as an input layer into the Euclidean Distance tool within ArcGIS to create a layer that measures straight-line distance from each canopy location within the city. These distances are grouped into five classes from 0-4 with 4 being the closest to Canopy and therefore the highest priority. The further a location is from the canopy, the lower the ranking it receives. A ranking of 0 is given to locations that are currently occupied by tree canopy and not plantable. Higher values in this ranking will prioritize areas that have small gaps that can be filled in order to increase tree canopy closure, which has great impact of wildlife habitat by providing larger corridors to support a variety of different species.

DISTANCE TO CANOPY	
Rank	Distance to Canopy (ft)
0	0
1	Over 200
2	101-200
3	51-100
4	1-51

FLOODPLAIN

Source: National Hydrologic Dataset—USDS Geospatial Data Gateway

Link: <https://datagateway.nrcs.usda.gov/>

Data Attribute: Cost Distance

The floodplain is derived by using the hydrography lines from the United States Department of Agriculture (USDA) website and the Slope Percent Rise (found by calculating Slope using the Digital Elevation Model (DEM) from the USDA website). The Cost Distance tool within ArcGIS was used with these layers to create a raster dataset that shows a cost-weighted distance from the hydrography lines based on the percent rise of the land. This process identifies the first major slope break which indicates the normal stream bank channel that will fill during flooding events. The resulting data layer will show locations of where water will travel during periods of flood. These distances are grouped into five classes from 0–4 with 4 being in the floodplain area and therefore the highest priority. The further a location is from the floodplain, the lower the ranking it receives. A ranking of 0 is given to locations that are the furthest from the floodplain.

FLOODPLAIN— COST DISTANCE	
Rank	Cost Distance (ft)
0	Over 2,500
1	1,001–2,500
2	501–1,000
3	101–500
4	0–100

SOIL EROSION

Source: Natural Resource Conservation Service—USDA Web Soil Survey

Link: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Data Attribute: K-factor

Soil Erosion is found by analyzing the K-factor information from the USDA Soil Surveys. This data is classified into decimal numbers that range from 0.02–0.69. The higher numbers within this range mean that the area is more susceptible to sheet and rill erosion by water. Remaining values are given a value of 0 of which can represent water, quarries, pits, and other harder surface types. Water features are typically ponds, lakes and rivers. Rankings for this data are based on the susceptibility to erosion. A 0 ranking is given to areas that have little to no risk of erosion. The ranking increases as the risk of erosion increases with the highest ranking being 4. Planting in these priority areas will help decrease erosion vulnerability.

SOIL EROSION— K-FACTOR	
Rank	K-Factor (expressed as whole numbers)
0	0–10
1	11–20
2	21–30
3	31–37
4	Over 38

SOIL PERMEABILITY

Source: Natural Resource Conservation Service—USDA Web Soil Survey

Link: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Data Attribute: Hydrologic Soils Group (HSG)

Soil Permeability is found by analyzing the Hydrologic Soils Group (HSG) information from the USDA Soil Surveys. This data is classified into four classes: A, B, C, and D. Group A soils have a high infiltration rate, Group B has a moderate infiltration rate, Group C has a slow infiltration rate, and Group D has a very slow infiltration rate. The remaining values are classified as W denoting water. These areas are typically larger bodies of water such as ponds, lakes or rivers. The rankings range from 0–4 with 4 being the highest priority. A ranking of 4 is given to the D classification due to its low infiltration rate. Planting in these locations will increase stormwater uptake and therefore, reduce the amount of runoff. Lower rankings are given to the A, B, and C classes as these classes have higher infiltration rates where water is able to percolate through the soil without creating surface runoff leading to an decrease in harmful pollutants and sediment into streams and stormwater infrastructure over time. The W class is given a 0 ranking because these areas are classified as water and have no bearing of runoff.

SOIL PERMEABILITY— HSG	
Rank	Threat
0	W
1	A
2	B
3	C
4	D

SLOPE

Source: National Elevation Dataset—USDA Geospatial Data Gateway

Link: <https://datagateway.nrcs.usda.gov/>

Data: DEM

Slope is calculated by using the Digital Elevation Model (DEM) from the USDA and finding the slope percent rise of the DEM. The Percent Rise results were grouped into five classes from 0–4 with 4 being the highest priority as shown below. The rankings for this data are based on the percent rise of the area. The larger the percent rise of the land, the higher the planting priority. A ranking of 0 is given to areas of no percent rise and the rankings then increase as the percent rise increase with the highest ranking being 4. Planting trees on areas of high percent rise can help decrease stormwater runoff.

SLOPE— PERCENT RISE	
Rank	Percent Rise
0	0
1	0–3
2	3–6
3	6–12
4	Over 12

U.S. CENSUS

DISPROPORTIONATELY IMPACTED COMMUNITIES

Source: CDPHE Disproportionately Impacted Communities

Link: <https://data-cdphe.opendata.arcgis.com/datasets/CDPHE::cdphe-disproportionately-impacted-communities-archived-version-september-2021/explore?location=39.747254%2C-105.046962%2C14.91>

Data Attribute: AMR8E001—Median household income in the past 12 months (dataset displays disproportionately impacted communities as defined by the demographic criteria listed in the Environmental Justice Act [HB21-1266])

Block Groups in this area that were affected by The Housing Burden, People of Color categories or by more than one category are given higher priority. These areas are classified into 3 groups depending on the impact amount. No impact areas receive a 0 or very low priority, areas that have one category that impacts the area are given a 3, and area impacted by more than one category are given a 4. Planting in these high priority areas may help address social equity issues and provide residents equal access to nature.

DISPROPORTIONATELY IMPACTED COMMUNITIES	
Rank	Impaction Amounts
0	No Categories Identified
3	One Category Identified
4	More Than One Category Identified

VULNERABLE AGES (UNDER 8/65 AND OVER)

Source: U.S. Census Bureau—Sex by Age: Census Data Table B01001

Link: <https://www.nhgis.org/documentation/tabular-data>

Data Attribute: AMPKE003-AMPKE006, AMPKE020-AMPKE025, AMPKE027-AMPKE030, AMPKE044-AMPKE049

Data shows the population over 65 years of age and under the age of 5 for each block group. People on these age groups are more susceptible to a number of environmental and health factors. These age groups are combined into one percentage of the population and are labeled as 'vulnerable ages.' The percentages are classified into five groups using quantile classification within ArcGIS and ranked from 0-4 based on the amount of income. A ranking of 0 is given to areas with lower percentages of vulnerable ages. The higher the percentage is, the higher the ranking. A ranking of 4 is given to areas that have the highest percent of vulnerable ages. Planting in these high priority areas may help address social equity issues and provide residents equal access to nature as well as the environmental and health benefits from trees.

PERCENT OF POPULATION AT A VULNERABLE AGE	
Rank	Vulnerable Age Percent
0	7.0-10.0%
1	10.0-13.0%
2	13.0-17.0%
3	17.0-19.0%
4	19.0-21.0%

RENTER POPULATION

Source: U.S. Census Bureau—Occupied housing units: Census Data Table B25003

Link: <https://www.nhgis.org/documentation/tabular-data>

Data Attribute: AMUFE003: Renter occupied

Data shows percentage of homes that are renter occupied in each block group. Percentages are classified into five groups using quantile classification within ArcGIS and ranked from 0-4 based on the amount of the percentage. A ranking of 0 is given to areas with lower percentages of renter. This ranking increases as the percentage of renter residents increases. Planting in these high priority areas may help address social equity issues and provide residents equal access to nature.

U.S. CENSUS—OCCUPIED HOUSES	
Rank	Renter Percent
0	0.0-25.0%
1	25.0-40.0%
2	40.0-60.0%
3	60.0-75.0%
4	75.0-85.0%

HEALTH

ASTHMA HOSPITALIZATION RATE

Source: Colorado EnviroScreen V1 Block Group

Link: <https://data-cdphe.opendata.arcgis.com/datasets/CDPHE::colorado-enviroscreen-v1-blockgroup/explore?location=39.716878%2C-105.005659%2C12.74>

Data Attribute: Asthma Hospitalization Rate (Percentile)

The Asthma Hospitalization rate was collected for the Colorado EnviroScreen Analysis. Data is recorded by block group. The asthma rates are grouped into five classes using quantile classification within ArcGIS and ranked from 0-4. A ranking of 0 is given to the lowest prevalence recorded. This ranking increases as the asthma rates increase with the highest ranking being 4. Planting in these priority areas will potentially help decrease asthma prevalence.

COLORADO ENVIROSCREEN—ASTHMA	
Rank	Percentile
0	65.0-70.0%
1	70.0-75.0%
2	75.0-80.0%
3	80.0-85.0%
4	85.0-90.0%

CORONARY HEART DISEASE

Source: Colorado EnviroScreen V1 Block Group

Link: <https://data-cdphe.opendata.arcgis.com/datasets/CDPHE::colorado-enviroscreen-v1-blockgroup/explore?location=39.716878%2C-105.005659%2C12.74>

Data Attribute: Heart Disease in Adults (Percentile)

The Asthma Hospitalization rate was collected for the Colorado EnviroScreen Analysis. Data is recorded by block group. The heart disease rates are grouped into five classes using quantile classification within ArcGIS and ranked from 0–4. A ranking of 0 is given to the lowest prevalence. This ranking increases as the coronary heart disease rates increase with the highest ranking being 4.

COLORADO ENVIROSCREEN–HEART	
Rank	Percentile
0	12.0–20.0%
1	20.0–28.0%
2	28.0–36.0%
3	36.0–42.0%
4	42.0–50.0%

TREE CANOPY BY ZONING

The zoning categories displayed in Table 2 are interpretations of data from the 2020 Edgewater Urban Tree Canopy Assessment. See the table below for the source categorizations of Edgewater’s zoning areas.

COLORADO ENVIROSCREEN–HEART			
Zoning	Acres	UTC %	Distance of UTC
Unlimited Commercial	0	0%	0%
Residential, Two-Family	7	19%	14%
Residential, One-Family	35	18%	67%
Residential, Multi-Dwelling Family	6	15%	12%
Residential, High-Rise Apartments	<1	8%	0%
Residential Planned Development	1	12%	1%
Limited Residential-Commercial	<1	2%	0%
Limited Commercial	3	5%	5%
General Commercial	<1	7%	0%
Total	52	86%	100%



APPENDIX B. EDGEWATER INDICATORS OF A

THE TREES	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Urban Tree Canopy	Achieve the desired tree canopy cover according to goals set for the entire city and neighborhoods. Alternatively, achieve 75% of the total canopy possible for the entire city and in each neighborhood.
Equitable Distribution (Location of Canopy)	Achieve low variation between tree canopy and equity factors citywide by neighborhood. Ensure that the benefits of tree canopy are available to all, especially for those most affected by these benefits.
Age of Trees (Size and Age Distribution)	Establish a diverse-aged population of public trees across the entire city and for each neighborhood. Ideal standard: <ul style="list-style-type: none"> 0-8" DBH: 40% 9-17" DBH: 30% 18-24" DBH: 20% Over 24" DBH: 10%
Condition of Publicly Owned Trees (Trees Managed Intensively)	Possess a detailed understanding of tree condition and potential risk of all intensively-managed, publicly-owned trees. This information is used to direct maintenance actions.
Condition of Publicly Owned Natural Areas (Trees Managed Extensively)	Possess a detailed understanding of the ecological structure and function of all publicly-owned natural areas (such as woodlands, ravines, stream corridors, etc.), as well as usage patterns.
Trees on Private Property	Possess a solid understanding of the extent, location and general condition of trees on private lands.
Diversity	Establish a genetically diverse population of publicly-owned trees across the entire city and for each neighborhood. Tree populations should be comprised of no more than 30% of any family, 20% of any genus, or 10% of any species.
Suitability	Establish a tree population suited to the urban environment and adapted to the overall region. Suitable species are gaged by exposure to imminent threats, considering the "Right Tree for the Right Place" concept and invasive species.

SUSTAINABLE URBAN FOREST

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
Canopy is decreasing. AND/OR No canopy goals have been set.	Canopy is not dropping, but not on a trajectory to achieve the established goal.	Canopy goal is achieved, or well on the way to achievement.	LOW: <i>Urban tree canopy assessment completed in 2020 with 2017 aerial imagery. Tree canopy cover is 14.9%. No canopy goal has been set.</i>
Tree planting and public outreach and education is not determined by tree canopy cover or benefits.	Tree planting and public outreach and education is focused on neighborhoods with low tree canopy.	Tree planting and public outreach and education is focused in neighborhoods with low tree canopy and a high need for tree benefits.	LOW: <i>Tree planting is currently done on an ad-hoc basis and not planned based on location or equitable distribution of tree canopy.</i>
Age distribution is not proportionately distributed across size classes at the city level.	Age distribution is evenly distributed at city level, though unevenly distributed at the neighborhood level.	Age distribution is generally aligned with the ideal standard diameter classes at the neighborhood level.	LOW: <i>Edgewater does not have complete data on public trees.</i>
No current information is available on tree condition or risk.	Information from a partial or sample or inventory is used to assess tree condition and risk.	Information from a current, GIS-based, 100% complete public tree inventory is used to indicate tree condition and risk.	LOW: <i>Edgewater does not have complete data on public trees.</i>
No current information is available on tree condition or risk.	Publicly-owned natural areas are identified in a sample-based "natural areas survey" or similar data.	Information from a current, GIS-based, 100% complete natural areas survey is utilized to document ecological structure and function, as well as usage patterns.	N/A: <i>There are no natural areas in Edgewater.</i>
No data is available on private trees.	Current tree canopy assessment reflects basic information (location) of both public and private canopy combined.	Detailed information available on private trees. Ex. bottom-up sample-based assessment of trees.	MODERATE: <i>UTC data available on public and private property tree canopy.</i>
Fewer than five species dominate the entire tree population citywide.	No species represents more than 20% of the entire tree population citywide.	No species represents more than 10% of the entire tree population citywide.	LOW: <i>Edgewater does not have complete data on public trees.</i>
Less than 50% of trees are considered suitable for the site.	50% to 75% of trees are considered suitable for the site.	More than 75% of trees are considered suitable for the site.	LOW: <i>Edgewater does not have complete data on public trees.</i>

THE PLAYERS	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Neighborhood Action	Citizens understand, cooperate, and participate in urban forest management at the neighborhood level. Urban forestry is a neighborhood-scale issue.
Large Private & Institutional Landholder Involvement	Large, private, and institutional landholders embrace citywide goals and objectives through targeted resource management plans.
Green Industry Involvement	The green industry works together to advance citywide urban forest goals and objectives. The city and its partners capitalize on local green industry expertise and innovation.
City Department and Agency Cooperation	All city departments and agencies cooperate to advance citywide urban forestry goals and objectives.
Funder Engagement	Local funders are engaged and invested in urban forestry initiatives. Funding is adequate to implement citywide urban forest management plan.
Utility Engagement	All utilities are aware of and vested in the urban forest and cooperates to advance citywide urban forest goals and objectives.

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
Little or no citizen involvement or neighborhood action.	Some active groups are engaged in advancing urban forestry activity, but with no unified set of goals or priorities.	The majority of all neighborhoods are organized, connected, and working towards a unified set of goals and priorities.	MODERATE: Engaged residents and board/commissions. Need to better engage renters, rental property owners, Spanish speaking residents to understand their needs and priorities.
Large private landholders are unaware of issues and potential influence in the urban forest. No large private land management plans are currently in place.	Education materials and advice is available to large private landholders. Few large private landholders or institutions have management plans in place.	Clear and concise goals are established for large private landholders through direct education and assistance programs. Key landholders and institutions have management plans in place.	LOW: Edgewater does not have a lot of large private landholders. Need to engage with Jefferson County Schools to update their tree list and help support maintenance and canopy growth on their properties.
Little or no involvement from green industry leaders to advance local urban forestry goals.	Some partnerships are in place to advance local urban forestry goals, but more often for the short-term.	Long-term committed partnerships are working to advance local urban forestry goals.	MODERATE: City Arborist has relationships with green industry professionals and both disseminates and shares information with them. Improvements needed with arborists that work in the City to improve practices.
Conflicting goals and/or actions among city departments and agencies.	Informal teams among departments and agencies are communicating and implementing common goals on a project-specific basis.	Common goals and collaboration occur across all departments and agencies. City policy and actions are implemented by formal interdepartmental and interagency working teams on all city projects.	MODERATE: Coordination has improved but there are policies and SOPs that should be established to make communication and coordination consistent.
Little or no funders are engaged in urban forestry initiatives.	Funders are engaged in urban forestry initiatives at minimal levels for short-term projects.	Multiple funders are fully engaged and active in urban forestry initiatives for short-term projects and long-term goals.	LOW: Need better engagement and coordination with potential local funding sources
Utilities and city agencies act independently of urban forestry efforts. No coordination exists.	Utilities and city agencies have engaged in dialogues about urban forestry efforts with respect to capital improvement and infrastructure projects.	Utilities, city agencies, and other stakeholders integrate and collaborate on all urban forestry efforts, including planning, site work, and outreach/education.	LOW: Little engagement with local utilities.

THE PLAYERS (CONTINUED)	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Developer Engagement	The development community is aware of and vested in the urban forest and cooperates to advance citywide urban forest goals and objectives.
Public Awareness	The general public understands the benefits of trees and advocates for the role and importance of the urban forest.
Regional Collaboration	Neighboring communities and regional groups are actively cooperating and interacting to advance the region's stake in the city's urban forest.

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
Little or no cooperation from developers in (or awareness of) municipality-wide urban forest goals and objectives.	Some cooperation from developers and general awareness and acceptance of municipality-wide goals and objectives.	Specific collaborative arrangements across development community in support of municipality-wide goals and objectives.	LOW: Lack of coordination/ collaboration with developers.
Trees are generally seen as a nuisance, and thus, a drain on city budgets and personal paychecks.	Trees are generally recognized as important and beneficial.	Trees are seen as valuable infrastructure and vital to the community's well-being. The urban forest is recognized for the unique environmental, economic, and social services it provides to the community.	MODERATE-HIGH: The community values the trees in Edgewater but would like better maintenance, care, and species selection.
Little or no interaction between neighboring communities and regional groups.	Neighboring communities and regional groups share similar goals and policy vehicles related to trees and the urban forest.	Regional urban forestry planning, coordination, and management is widespread.	MODERATE: Neighboring communities have similar interests. Focus Group of regional urban foresters found interest for more regional cooperation among neighboring communities.

THE MANAGEMENT	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Tree Inventory	Comprehensive, GIS-based, current inventory of all intensively-managed public trees to guide management, with mechanisms in place to keep data current and available for use. Data allows for analysis of age distribution, condition, risk, diversity, and suitability.
Canopy Assessment	Accurate, high-resolution, and recent assessment of existing and potential city-wide tree canopy cover that is regularly updated and available for use across various departments, agencies, and/or disciplines.
Management Plan	Existence and buy-in of a comprehensive urban forest management plan to achieve city-wide goals. Re-evaluation is conducted every 5 to 10 years.
Risk Management Program	All publicly-owned trees are managed for maximum public safety by way of maintaining a city-wide inventory, conducting proactive annual inspections, and eliminating hazards within a set timeframe based on risk level. Risk management program is outlined in the management plan.
Maintenance Program of Publicly-Owned Trees (Trees Managed Intensively)	All intensively-managed, publicly-owned trees are well maintained for optimal health and condition in order to extend longevity and maximize benefits. A reasonable cyclical pruning program is in place, generally targeting 5 to 7 year cycles. The maintenance program is outlined in the management plan.

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
No inventory or out-of-date inventory of publicly-owned trees.	Partial or sample-based inventory of publicly-owned trees, inconsistently updated.	Complete, GIS-based inventory of publicly-owned trees, updated on a regular, systematic basis.	LOW: Edgewater Parks and Recreation staff trained by the City Arborist conducted a limited inventory of public right-of-way trees during COVID. The inventory is not geospatial and does not include data and information on condition or tree risk.
No tree canopy assessment.	Sample-based canopy cover assessment, or dated (over 10 years old) high resolution canopy assessment.	High-resolution tree canopy assessment using aerial photographs or satellite imagery.	HIGH: Urban tree canopy assessment completed in 2020 with 2017 aerial imagery. Tree canopy cover is 14.9%.
No urban forest management plan exists.	A plan for the publicly-owned forest resource exists but is limited in scope, acceptance, and implementation.	A comprehensive plan for the publicly owned forest resource exists and is accepted and implemented.	MODERATE: There is a not a comprehensive urban forest management plan in place, however, Edgewater created an EAB Management Plan in 2014 and has been actively implementing it since it was adopted.
Request-based, reactive system. The condition of publicly-owned trees is unknown.	There is some degree of risk abatement thanks to knowledge of condition of publicly-owned trees, though generally still managed as a request-based reactive system.	There is a complete tree inventory with risk assessment data and a risk abatement program in effect. Hazards are eliminated within a set time period depending on the level of risk.	LOW: There is not a risk management program in place. Work is reactive and completed based on request or complaint. Adjacent property owners are responsible for street tree maintenance.
Request-based, reactive system. No systematic pruning program is in place for publicly-owned trees.	All publicly-owned trees are systematically maintained, but pruning cycle is inadequate.	All publicly-owned trees are proactively and systematically maintained and adequately pruned on a cyclical basis.	LOW: Tree maintenance is reactive and completed based on request or complaint. Adjacent property owners are responsible for street tree maintenance and there are no requirements for routine maintenance of street trees.

THE MANAGEMENT (CONTINUED)	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Maintenance Program of Publicly-Owned Natural Areas (Trees Managed Extensively)	The ecological structure and function of all publicly-owned natural areas are protected and enhanced while accommodating public use where appropriate.
Planting Program	Comprehensive and effective tree planting and establishment program is driven by canopy cover goals, equity considerations, and other priorities according to the plan. Tree planting and establishment is outlined in the management plan.
Tree Protection Policy	Comprehensive and regularly updated tree protection ordinance with enforcement ability is based on community goals. The benefits derived from trees on public and private property are ensured by the enforcement of existing policies.
City Staffing and Equipment	Adequate staff and access to the equipment and vehicles to implement the management plan. A high level urban forester or planning professional, strong operations staff, and solid certified arborist technicians.
Funding	Appropriate funding in place to fully implement both proactive and reactive needs based on a comprehensive urban forest management plan.

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
No natural areas management plans are in effect.	Only reactive management efforts to facilitate public use (risk abatement).	Management plans are in place for each publicly-owned natural area focused on managing ecological structure and function and facilitating public use.	N/A: There are no natural areas in Edgewater.
Tree establishment is ad hoc.	Tree establishment is consistently funded and occurs on an annual basis.	Tree establishment is directed by needs derived from a tree inventory and other community plans and is sufficient in meeting canopy cover objectives.	LOW: Tree planting is not planned and done as needed.
No tree protection policy.	Policies are in place to protect trees, but the policies are not well-enforced or ineffective.	Protections policies ensure the safety of trees on public and private land. The policies are enforced and supported by significant deterrents and shared ownership of city goals.	LOW-MODERATE: Ordinances/regulations are not in place to protect public trees from removal. Wireless communication facilities must preserve trees "to the maximum extent possible." The Water Efficient Landscape Code (2023) highly recommends protection and preservation of natural vegetation.
Insufficient staffing levels, insufficiently-trained staff, and/or inadequate equipment and vehicle availability.	Certified arborists and professional urban foresters on staff have some professional development, but are lacking adequate staff levels or adequate equipment.	Multi-disciplinary team within the urban forestry unit, including an urban forestry professional, operations manager, and arborist technicians. Vehicles and equipment are sufficient to complete required work.	LOW: The City Arborist position, in the Department of Parks and Recreation, is part time (1/4 time). Public Works that is responsible for maintaining access to streets (but does not do tree maintenance) needs chainsaws and training on proper usage and PPE.
Funding comes from the public sector only, and covers only reactive work.	Funding levels (public and private) generally cover mostly reactive work. Low levels of risk management and planting in place.	Dynamic, active funding from engaged private partners and adequate public funding are used to proactively manage and expand the urban forest.	LOW: Funding (~\$30,000) from the General Fund - \$20,000 of the budget for the Healthy Canopy Program that provides assistance to treat, remove/replace ash trees on private property.

THE MANAGEMENT (CONTINUED)	
Indicators of a Sustainable Urban Forest	Overall Objective or Industry Standard
Disaster Preparedness & Response	A disaster management plan is in place related to the city's urban forest. The plan includes staff roles, contracts, response priorities, debris management and a crisis communication plan. Staff are regularly trained and/or updated.
Communication	Effective avenues of two-way communication exist between the city departments and between city and its citizens. Messaging is consistent and coordinated, when feasible.

Performance Levels			Edgewater's Assessment
Low	Moderate	High	
No disaster response plan is in place.	A disaster plan is in place, but pieces are missing and/or staff are not regularly trained or updated.	A robust disaster management plan is in place, regularly updated and staff is fully trained on roles and processes.	LOW: A disaster preparedness and response plan has not been developed. The City did create an EAB Management Plan in 2014 that has been adopted and implemented.
No avenues are in place. City departments and public determine on an ad-hoc basis the best messages and avenues to communicate.	Avenues are in place, but used sporadically and without coordination or only on a one-way basis.	Avenues are in place for two way communication, are well-used with targeted, coordinated messages.	LOW-MODERATE: There is communication between departments but roles and standard operating procedures are not in place that would improve the effectiveness of communication.

APPENDIX C. ORDINANCE REVIEW

Edgewater’s relevant ordinances were reviewed and assessed for their coverage of important urban forestry topics. Included in the review was:

- **Home Rule Charter and Code of the City of Edgewater, CO.**
 - » Chapter 6. Business Licenses and Regulations.
 - » Chapter 7. Health, Sanitation, and Animals.
 - » Chapter 11. Streets, Sidewalks, and Public Property.
 - » Chapter 16. Zoning.
- **Water Efficient Landscaping Code** (adopted 2023).

ORDINANCE REVIEW			
Topic	Addressed (YES/ PARTIAL/NO)	Chapter & Section	Comments
Credentials			
Requires certified arborist for paid private tree work	NO		
Requires Certified Arborist for public tree work	NO		
Requires licensing of private tree care firms	PARTIAL	CO 6-1-30; CO 11-4-30	All businesses require general business license. Arborist license required for work by private companies (not utilities) on City trees.
Defines official authority for public tree management	NO		
Public Tree Management and Protection			
Establishes/Authorizes City Forester to regulate public trees	PARTIAL	CO 11-4-20 (b)	Outlines the authority of the Tree Commission and City Manager for retention of an arborist. In the absence of an arborist, the City Manager can designate someone else to be responsible for duties.
Establishes/Authorizes City position (e.g. Mayor, City Administrator, DPW Director) to regulate public trees	YES	CO 11-4-80	Director of Public Works
Established a community Tree Board or Commission	YES	CO 11-4-20	

ORDINANCE REVIEW (CONTINUED)			
Topic	Addressed (YES/ PARTIAL/NO)	Chapter & Section	Comments
Defines public trees	YES	CO 11-4-10	City trees means all trees, shrubs, bushes and all other woody vegetation located in whole or in part within or overhanging any public easements, public rights-of-way, open space or public property. Public City trees means City trees that are planted upon, have a trunk wholly or partially within or otherwise originate or emanate from public property.
Requires annual community tree work plans	PARTIAL	CO 11-4-20	Requires a written plan; no time frame
Identifies formula for determining monetary tree value	NO		
Establishes responsibility for public tree maintenance (e.g. City, adjacent property owner)	YES	CO 11-4-80; 11-4-90; 11-4-100; 11-4-110	City has authority over Public City trees. Adjacent property owner is responsible for pruning, removal and stump removal of City trees.
Requires regular public tree maintenance	NO		
Requires particular types of maintenance (e.g., pruning)	PARTIAL	CO 11-4-90	Requires pruning to maintain 8-ft sidewalk clearance, 15-ft road clearance.
Requires adherence to ANSI A300 standards and best management practices	NO		
Establishes permit system for work on public trees	NO		
Requires payment of fees for the removal of public trees	NO		
Establishes provisions for penalties for non-compliance	PARTIAL	CO 7-8-30	Violation and fine for failing to maintain required clearance of City trees
Restricts tree removal on public property	NO		
Permit or approval required for tree removal, pruning or excavating near public trees	PARTIAL	CO 11-3-210	Requires permit for digging, tunneling, excavating in the right-of-way, regardless of trees
Requires protection of public trees during construction, repairs or utility work	YES	CO 11-3-60	During excavation—trees require removal authorization by City Engineer, requires restoration of damaged property (trees included)

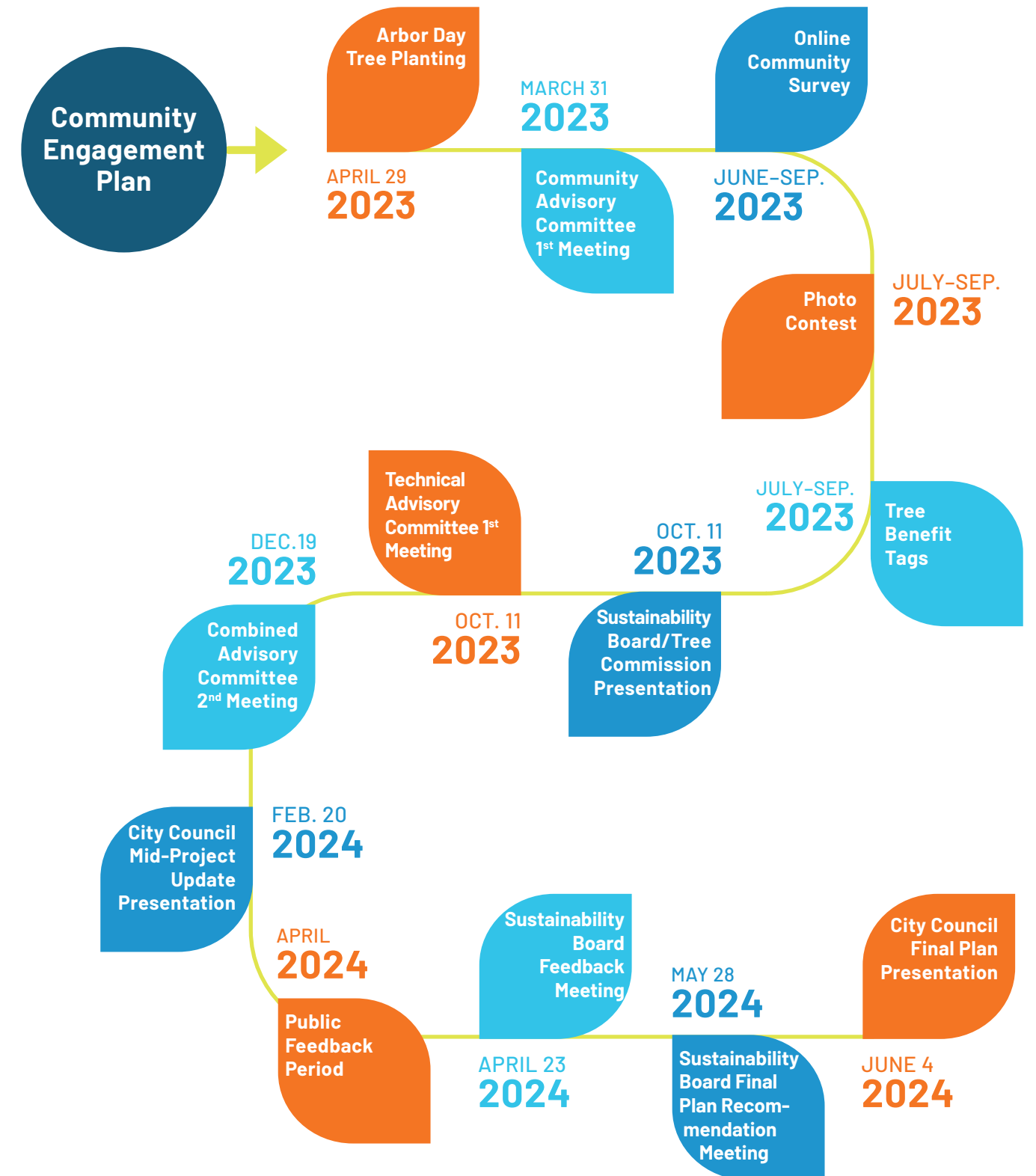
ORDINANCE REVIEW (CONTINUED)			
Topic	Addressed (YES/ PARTIAL/NO)	Chapter & Section	Comments
Prohibits damage to public trees (e.g. attaching ropes, signs, wires, chemicals, storing materials, excavation etc.)	NO		
Establishes provisions for trimming for overhead utility line clearance	NO		
Restricts burning of solid wood waste	NO		
Establishes a wood utilization program	NO		
Establishes an insect/disease control strategy	NO		
Prohibits tree topping	NO		
Regulates abatement of hazardous or nuisance trees on private property	YES	CO 7-2-130	City Arborist can remove nuisance trees on private property, defined as hazardous trees or those which harbor insects/disease.
Regulates removal of dead or diseased trees	YES	CO 7-2-130	City Arborist can remove nuisance trees on private property, defined as hazardous trees or those which harbor insects/disease.
Tree Planting			
Regulates tree species which may or may not be planted on private property (approved tree list)	PARTIAL	CO 11-4-50	Prohibits cottonwood and boxelder trees
Requires tree planting around and within parking lots	YES	WELC 16-34-30 (ix)	Requires at least 1 tree per 2000 sq ft not covered by building or required parking
Requires replacement of removed publicly owned trees	PARTIAL	CO 11-3-60	Reasonable replacement to satisfaction of City Engineer
Permits public tree planting—beyond the right-of-way	YES	CO 11-4-40	Within provided species list
Requires tree plantings around new developments (see also trees in parking lots)	YES	WELC 16-34-30 (ix)	Requires at least 1 tree per 2000 sq ft not covered by building or required parking
Regulates tree species which may or may not be planted on public property (approved tree list)	YES	CO 11-4-40	Written permission required for other species not on this list
Private Tree Protection and Preservation			
Restricts tree removal on private property	NO		
Permit or approval required for tree removal on private property	NO		

ORDINANCE REVIEW (CONTINUED)			
Topic	Addressed (YES/ PARTIAL/NO)	Chapter & Section	Comments
Requires preservation of trees during development on private property	NO		
Encourages preservation of trees during development on private property	PARTIAL	CO 16-33-50 (5) WELC 16-34-30 (a)	Wireless communication facilities must submit site plan. WELC code highly recommends protection and preservation of natural vegetation.
Prohibits damage to preserved/protected trees	NO		
Prohibits damage or removal of trees on another person's property	NO		
Inventory of trees on site required	NO		
Identification of forests/woodlands required	YES	WELC 16-34-100 (d)	
Specific species and/or size tree regulated (e.g. heritage/significant trees)	NO		
Location of Critical Root Zone/Dripline required	NO		
Minimum canopy coverage requirement set	NO		
Identification of riparian buffers, natural areas, preservation zones	NO		
Tree protection/preservation plan required	NO		
Identification of prohibited activities in dripline/critical root zone	NO		
Tree protection fencing required	NO		
Location/type of other tree protection measures (e.g. root pruning, aeration, vertical mulching, trunk protection, soil protection, irrigation,) on development plans (e.g. site plans, construction plans, etc.)	NO		
Provide credits/incentives for tree preservation	NO		
Landscape plan with proposed landscaping and mitigation trees to be planted	PARTIAL	WELC 16-34-100 (d)	Requires a landscape design plan, but mitigation is not required
Requires Grading plan to include protected/preserved trees	NO		
Utility plan with trees to include protected/preserved trees	NO		

ORDINANCE REVIEW (CONTINUED)			
Topic	Addressed (YES/ PARTIAL/NO)	Chapter & Section	Comments
Tree planting requirements for removal of regulated trees	NO		
Fee in Lieu of planting mitigation trees	NO		
Tree mitigation survival requirements	NO		
Fine for removal of regulated trees	NO		
Penalties established for damage and removal of preserved/saved trees	NO		
Bonding to ensure required trees are planted	NO		
Bonding utilized to discourage tree removals	NO		
Tree Fund	NO		
Other			
Corner clearance	YES	CO 11-4-60; CO 11-4-90	No tree within 15 ft (small/medium) or 25 ft (large) of corner. Requires pruning to remove obstructed view of street or alley intersection
Sign, street, and sidewalk clearance	YES	CO 11-4-90	8-ft clearance above sidewalks; 15-ft clearance above streets; remove menaces
Appeal	NO		

APPENDIX D. COMMUNITY ENGAGEMENT PLAN

The Community Engagement Plan develops a framework to actively involve and engage the community and stakeholders in the development of the urban forest master plan.



Engagement & Outreach Strategies

- **Targeted Stakeholder Engagement.** Community Advisory Committee and Technical Advisory Committee meetings and communication, a presentation to the Sustainability Board/Tree Commission, and to City Council.
- **Traditional Community Meeting.**
- **Community Survey.**
- **Photo Contest.**
- **Tree Benefits Tags.**

Communication

- **Edgewater Arbor Day Tree Planting.** Public kick-off for the UFMP project:
Join us to celebrate Arbor Day and plant a tree during our EcoEdgewater celebration! Saturday, April 29 from 1:00–3:00 PM at Jefferson Jr/Sr High School (2305 Pierce St, Edgewater, CO).
- **Project Webpage.** The City of Edgewater UFMP Project webpage will serve as a central hub for information, community survey, meetings, project calendar, and other public information.
- **Press Releases.** To announce project activities and engagement opportunities.
- **Social Media/Email.** Email listing on website, includes a way to sign up to stay informed via email.

Targeted Stakeholder Engagement

A total of three meetings were held throughout the duration of the project, engaging the Community and Technical Advisory Committees to help inform and guide the plan. Email updates to these groups were also provided throughout the project to keep these groups engaged.

Additionally, presentations were made to the Edgewater Sustainability Board/Tree Commission and City Council in the form of project updates.

COMMUNITY ADVISORY COMMITTEE

Target Audience: Engaged Citizens, Sustainability Board/Tree Commission members, and stakeholders identified by the City.

Timeline: Two meetings, first early in the process and second later in plan development. Second meeting was combined with the Technical Advisory Committee to review draft recommendations.

The Community Advisory Committee’s role is to provide guidance, feedback, and help share community engagement opportunities with their contacts. Meetings will cover project background, planning process, develop resources for survey, help promote survey, participation in outreach events, solicit feedback on outreach plan. The second meeting will be used to share information learned during the process (i.e., survey results, community meeting feedback, urban tree canopy data, etc.).

First meeting: May 31, 2023

Second meeting: December 19, 2023 (combined meeting)

TECHNICAL ADVISORY COMMITTEE

Target Audience: Technical City Staff Team Members of nearby communities

Timeline: Two meetings, first early in the process and second later in plan development. Second meeting was combined with the Community Advisory Committee to review draft recommendations.

The goal of this committee is to provide forestry expertise and guidance into plan development. This group will help to provide an understanding of the issues and opportunities related to Edgewater’s canopy from local and regional forestry experts. This Committee can also assist with providing input into the assessment of Edgewater on the trees and management approach of the Indicators of a Sustainable Urban Forest.

First meeting: October 11, 2023

Second meeting: December 19, 2023 (combined meeting)

SUSTAINABILITY BOARD/TREE COMMISSION PRESENTATION

Date: September 26, 2023

This presentation was given in lieu of a third Technical Committee Meeting and provided an update on plan development directly to the Edgewater Sustainability Board/Tree Commission. In addition to a brief slideshow presentation, board members provided feedback on the outreach and planning process.

CITY COUNCIL PRESENTATION

Date: February 20, 2024

This presentation to City Council provided an update on the plan status, and was delivered as the first draft of the plan was under review. Details on outreach methodology and results as well as draft recommendations were presented to Council. Time for thoughts and questions was provided and feedback was incorporated into the final draft.

Community Outreach and Education

TRADITIONAL COMMUNITY MEETING

Target Audience: Edgewater Community

Format: Two-hour Open House with language interpretation

Date: June 27, 2023

Location: Vietnamese Central Baptist Church

Meeting is an open house format that will include the Denver Urban Gardens and Kaizen Food Rescue that will share information on the Edgewater Food Forest Project that is being planted at the church.

- Brief presentation.
- Boards around the room for input.
- QR code to online survey.
- Multi-language interpretation .
- Kid activities and snacks (provided by City of Edgewater).

COMMUNITY SURVEY

Target Audience: Edgewater Community

Timeline: June (Available the night of the Community Meeting) to late September (Hometown Fest)

Online survey to gather input from the public:

Values around trees and issues, concerns and opportunities related to managing and caring for Edgewater’s urban forest. Survey completion time is less than 10 minutes. Survey will be hosted on the City of Edgewater’s project website and will be translated into Spanish and Vietnamese.

PHOTO CONTEST

Target Audience: Edgewater Community

Timeline: July to late September (Hometown Fest)

A Photo Contest was held that included prizes to be furnished by the City of Edgewater. The photo contest was hosted on the central project webpage.

TREE BENEFITS TAGS

Target Audience: Edgewater Community

Timeline: July to late September (Hometown Fest)

More than 30 large tree tags were hung on trees throughout the City that list the benefits/value of the tree (i-Tree My Tree) and include a sticker with a QR code to the project webpage. Tagged trees were determined by the City and the consultant throughout neighborhood parks, schools, and walkways.



APPENDIX E. UFMP COMMUNITY SURVEY SUMMARY

The Edgewater Urban Forest Master Plan Community Survey was open from June 27–October 9, 2023. A total of 49 people responded to the survey. This document provides the answers to each question, with a summary analysis of responses to the two open-ended survey questions (Questions 6 and 20). Based on the responses a set of common themes, issues and opportunities were identified.

Notes:

- Many respondents mentioned multiple themes in their responses therefore the total number of mentions may be greater than the total number of respondents.
- Some of the themes/issues/opportunities that were mentioned in response to Question 6 were also mentioned in Question 20. A summarized list of themes for both questions has been provided along with a breakdown by question.

Overall Themes

The responses for Questions 6 and 20 were combined and a summarized list of themes was developed. A breakdown of themes/issues/opportunities by questions follows. A total of 32 themes were identified—the top 20 themes are shown in the chart on the following page.

Who Participated in This Survey?

64% live in Edgewater, **29%** own property in Edgewater, and **6%** spend time in Edgewater for recreation or entertainment.

Of those who live in Edgewater:

7% have lived in the city for 0–2 years.

1% for 3–5 years.

1% for 6–10 years.

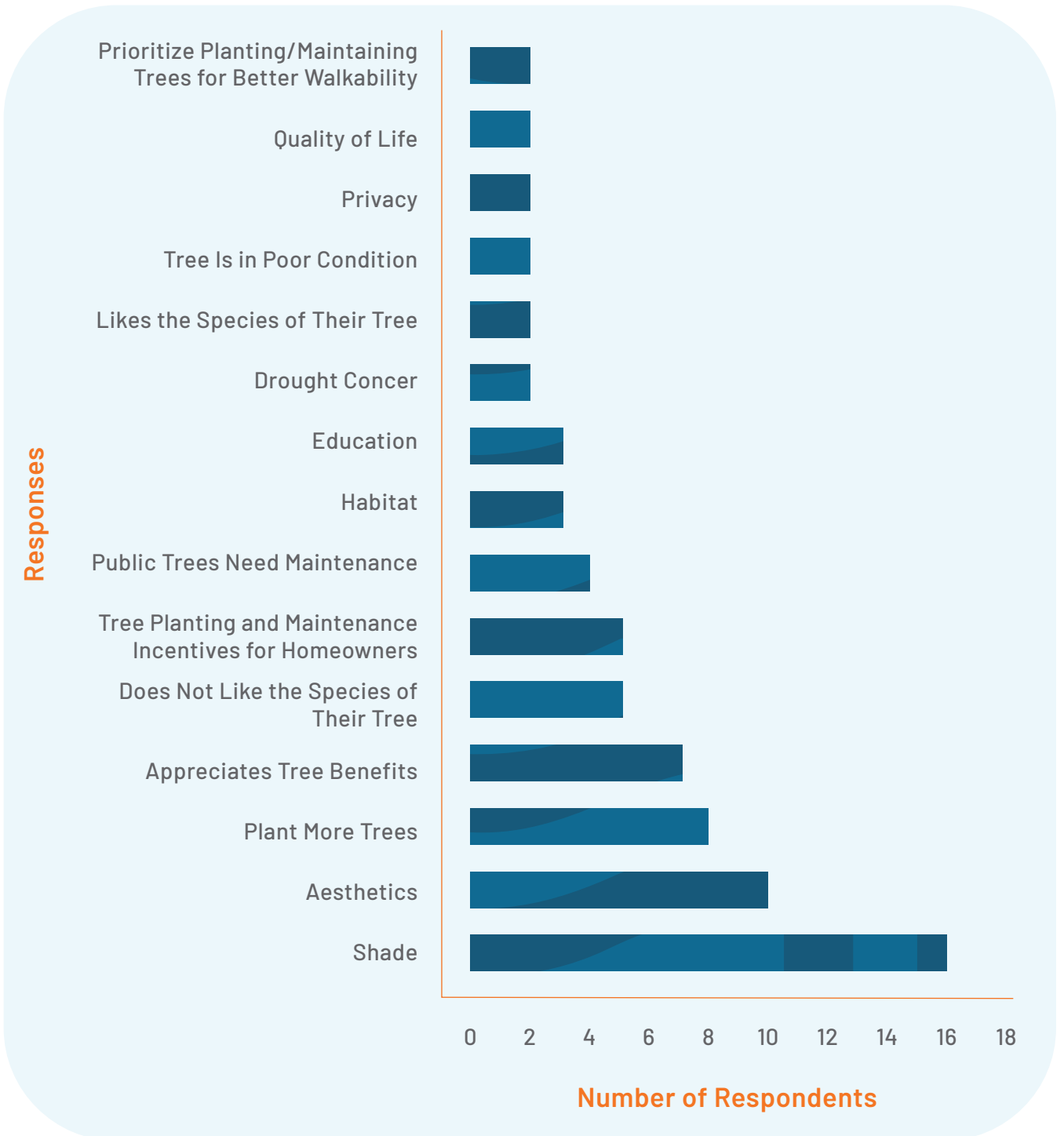
4% for 11–20 years.

7% for 21 years or more.

21% are renters.

79% own their home.

Combined Responses Top 15 Themes





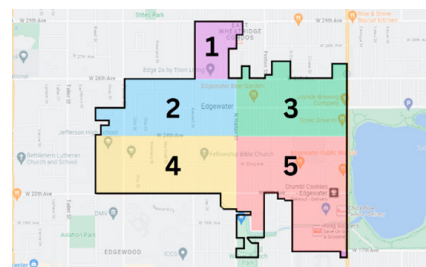
Question 1: 96% of the respondents STRONGLY AGREE that trees are an important part of Edgewater (the other 4% somewhat agree).

Question 2: 78% of the respondents think that there are not enough trees across the City of Edgewater.

Question 3: 76% of the respondents think that there are not enough trees in their neighborhood.

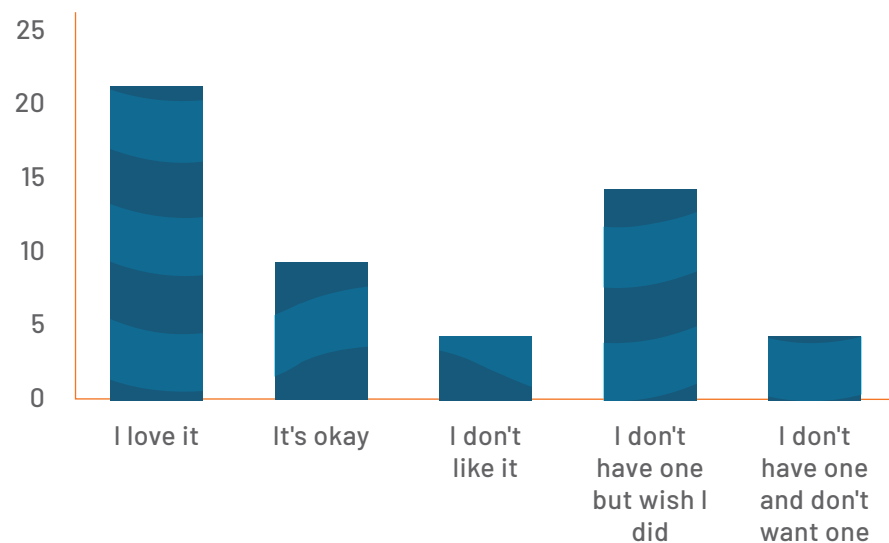
Question 4: Based on the map provided, respondents typically spend their time in Edgewater as follows:

- 4% in Zone 1.
- 39% in Zone 2.
- 24% in Zone 3.
- 14% in Zone 4.
- 18% in Zone 5.



Questions 5-6: Why do you feel the way you do about the street tree in front of your home or business?

49 people provided a response to this open-ended question. Question 5 asked respondents to answer the question—How do you feel about the street tree in front of your home?



Question 6 followed up to ask why they felt the way they did. There were 22 themes/issues/opportunities identified by survey respondents. They ranged from the benefits that trees provide to sidewalk issues to street tree care and planting needs. The issues/themes/opportunities for all responses to Question 6 are provided below and are followed by a breakdown of the responses for each of the Question 6 response choices.

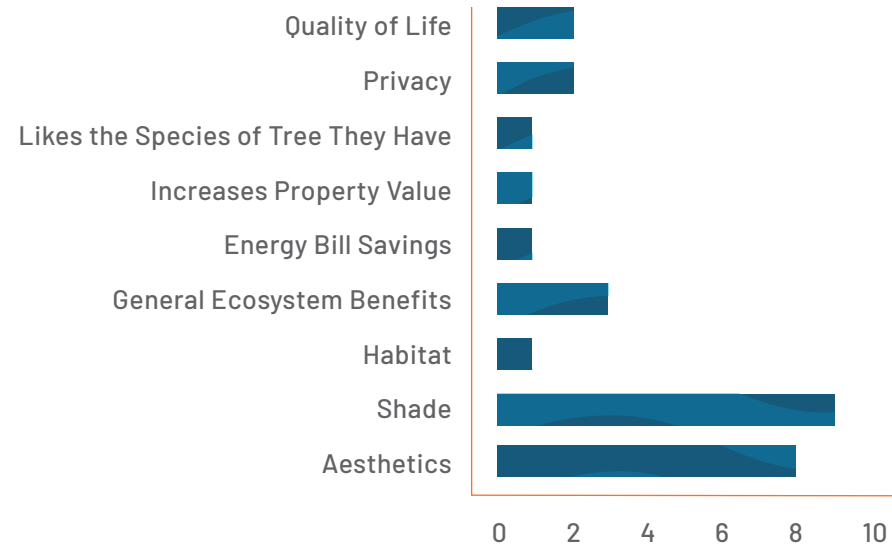
The themes were related to:

- The **benefits** that trees provide—there were 41 comments related to benefits, with top mentions of:
 - » Shade (16 comments).
 - » Beauty (10 comments).
 - » Wildlife habitat (three comments).
 - » Privacy (two comments).
- The importance of **species selection** (10 comments), with comments stating that:
 - » Their tree is in poor condition (three comments).
 - » There's no space for trees in front of their home (one comment).
 - » They don't like the species of tree they have (two comments).
 - » Trees create a "mess" with leaves or seed pods (two comments).
 - » They don't think Colorado's climate is suitable for trees (one comment).
- A general **appreciation for trees** (five comments)
 - » Two commented how they loved the species of tree they have.
 - » One commented that their tree connects them to the natural environment.
 - » One commented that trees increase the quality of life.



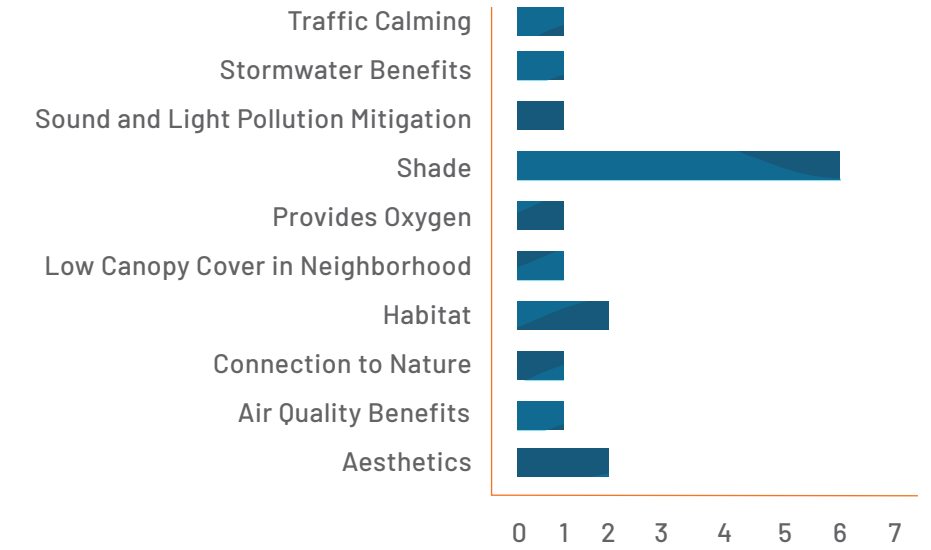
"I have a street tree, and I love it."

(Top Themes/Issues/Priorities)



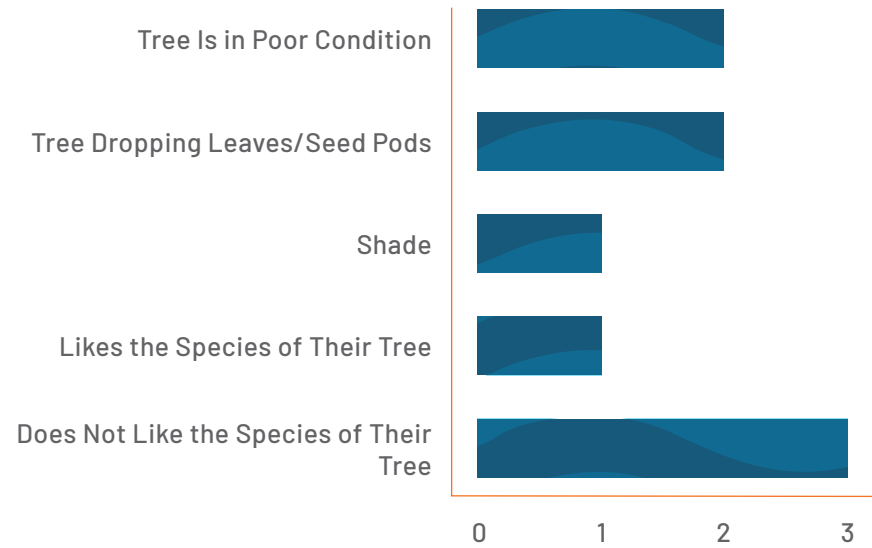
"I don't have a street tree, but I wish I did."

(Top Themes/Issues/Priorities)



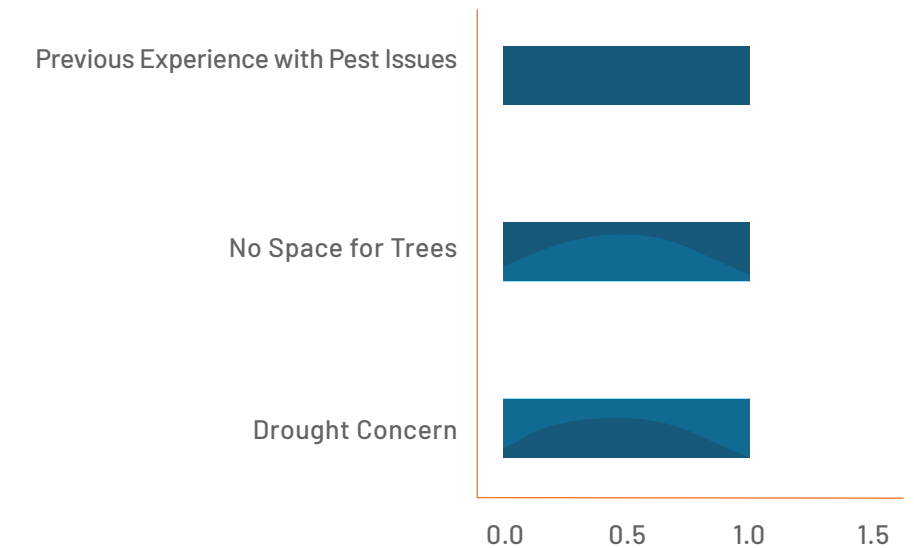
"I have a street tree, and it's okay."

(Top Themes/Issues/Priorities)



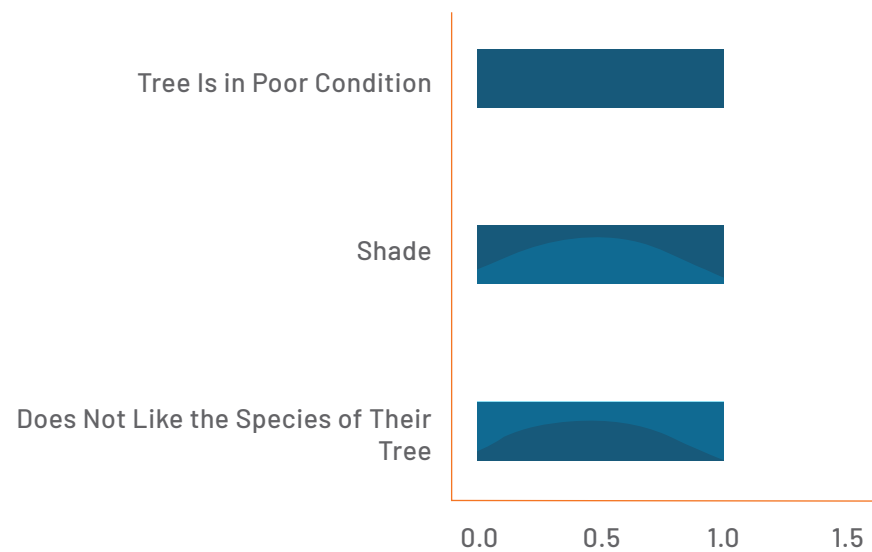
"I don't have a street tree and don't want one."

(Top Themes/Issues/Priorities)



"I have a street tree, and I don't like it."

(Top Themes/Issues/Priorities)





Question 7: 65% of respondents AGREE that public trees along the street and in parks seem well cared for in Edgewater (and 18% neither agree nor disagree).

Question 8: 53% of respondents AGREE that the City of Edgewater DOES NOT spend enough money or resources on trees (and 39% neither agree nor disagree).

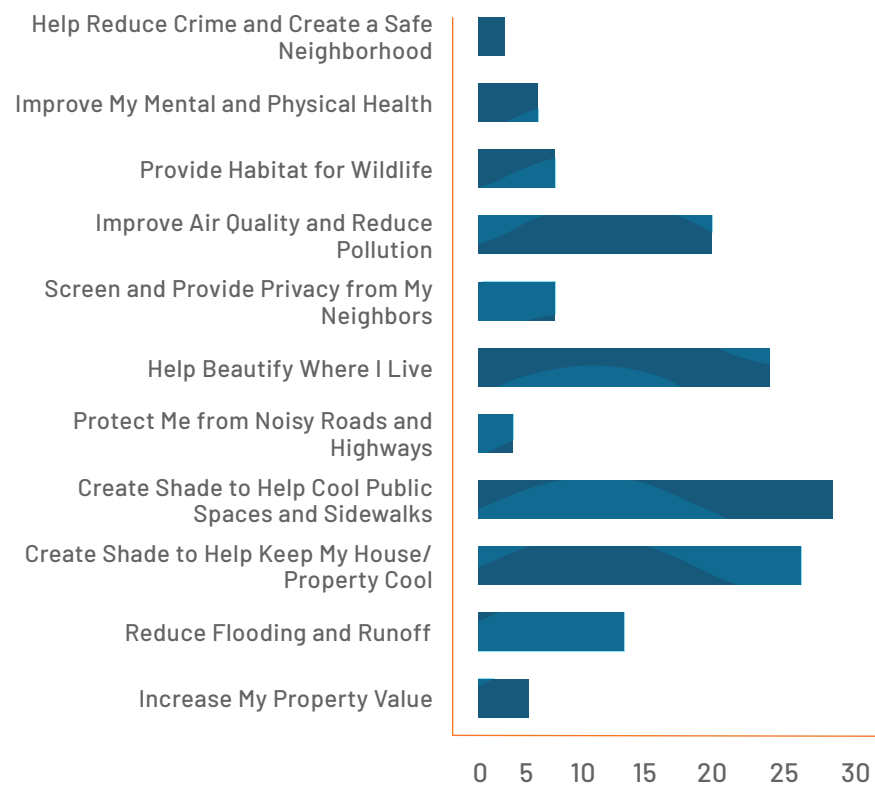
Question 9: 57% of respondents DISAGREE that The City of Edgewater spends TOO MUCH money and resources on trees (while the other 43% neither agree nor disagree).

Question 10: 96% of respondents AGREE that having trees is worth the financial cost of maintaining them over time.

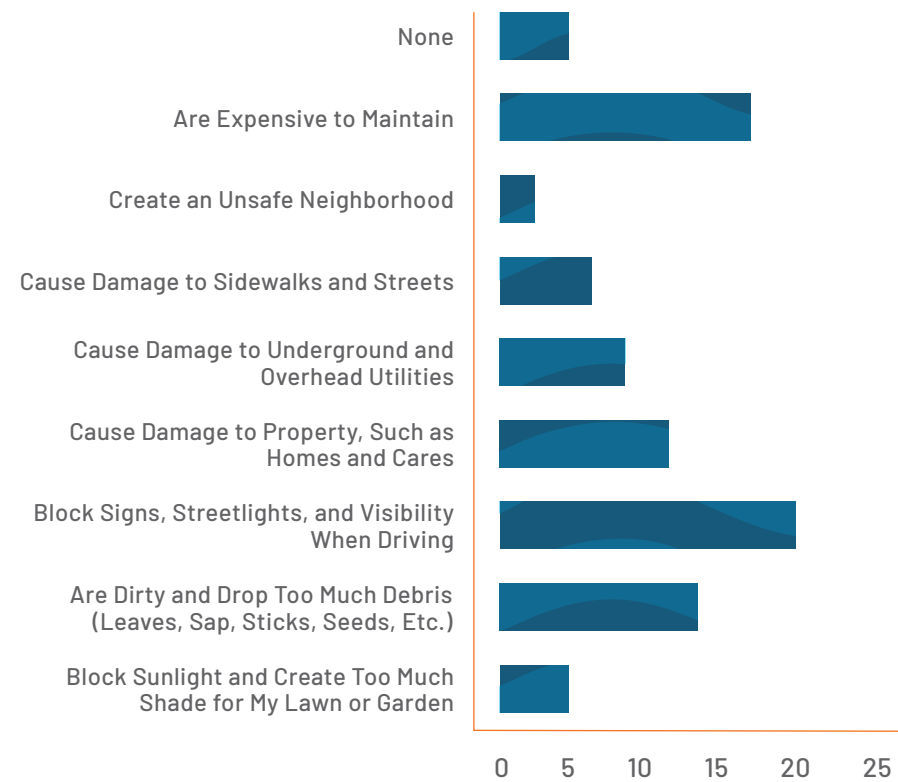
Question 11: 94% of respondents AGREE that large, mature trees should be preserved on PUBLIC property in Edgewater.

Question 12: While 88% of respondents AGREE that Large, mature trees should be preserved on PRIVATE property in Edgewater.

Question 13: Respondents chose the top three benefits they'd like the trees in Edgewater to provide:



Question 14: Respondents chose the top three issues or challenges that trees can create:



Questions 15-19 detailed in call out box on Page 1.

Question 20: Is there anything else you would like to tell us about Edgewater's trees and the urban forest?

30 people provided a response to this open-ended question. The following are the themes/ issues/opportunities identified.





The themes were related to:

- **Public Tree Planting and Care** (16 comments)
 - » Supporting **planting more trees** (eight comments).
 - » Need for **public tree maintenance** (four comments).
 - » Need for **proactive management for tree maintenance and planting**—two comments specifically for better walkability, one comment for planning with trees’ life cycles in mind, and one comment for mature tree-lined streets.
- **City Policies and Programs** (seven comments)
 - » **Limiting the regulation** of trees on private property (one comment).
 - » Requiring tree planting **requirements for new development** (one comment).
 - » Creating incentives for resident to plant and maintain trees (five comments).
- **Species Selection** (four comments)
 - » Promoting the use of **native, drought tolerant species** (three comments).
 - » Encouraging the planting of **trees with showy fall color** to attract tourism (one comment).
- **Education** (three comments)
 - » Education around topics including:
 - Identifying areas suitable for planting (one comment).
 - Information about current trees in the city (map of species)(one comment).
 - Tree care (one comment).
 - A general appreciation for trees (four comments).



